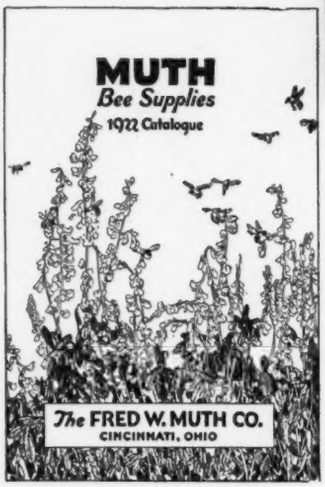
AMERICAN BEE JOURNAL

JULY 1922

APIARY BUILDING AND PORTION OF THE APIARY OF THE KANSAS STATE COLLEGE OF AGRICULTURE AT MANHATTAN.



You need our 1922 bee supply catalog more than ever before. Have you received one? Many new articles are listed for the saving of labor and greater honey production. Our attractive prices, superior quality and prompt service will always be appreciated by beekeepers.

Send a list of your requirements

to us

THE FRED W. MUTH COMPANY

Pearl and Walnut Sts., Cincinnati, Ohio

THE DIAMOND MATCH CO.

(APIARY DEPT.)

MANUFACTURERS OF

Beekeepers' Supplies

CHICO, CAL., U. S. A.

Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.

EASTERN DISTRIBUTORS

HOFFMAN & HAUCK, 1331 Ocean Ave.
WOODHAVEN, N. Y.

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to the Diamond Match Co. for prices and for their Beekeepers' Supply Catalog.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

ALUMINUM HONEYCOMBS

The Diamond Match Co. and their agents are the sole distributors in the United States of the Aluminum Honeycombs, manufactured by the Duffy-Diehl Co., Inc., of Pasadena, Calif. Write for descriptive pamphlets. Eastern beekeepers should send their orders for the Diamond Match Co.'s supplies to **Hoffman & Hauck, 1331 Ocean Avenue, Woodhaven, N. Y.**

DIAMOND MATCH CO., Apiary Department

CHICO, CALIFORNIA

NEW BINGHAM BEE SMOKER
PATENTED

BIG SMOKE

BIG SMOKE—WITH SHIELD FIRE POT, 4x10

NEW BINGHAM BEE SMOKER

SMOKE ENGINE—FIRE POT 4x7

WOODMANS FAMOUS BEE-WARE

THE SMOKER YOU OUGHT TO OWN

THE most important invention in beekeeping, as little can be accomplished without the Bee Smoker.

The **New Bingham Smoker** is the most efficient and durable machine on the market.

The standard for over 40 years in this and many foreign countries, and is the all important tool of the most extensive honey producers of the world.

Comes with metal legs, metal binding and turned edges. The four larger sizes have hinged covers. The fire grate is of very substantial material, with an abundance of draft holes, the 4-inch size having 381 holes, equal to an opening 2 inches square.

A valve in the bellows of the larger sizes makes the Smoker respond to the most delicate touch.

The new Bingham comes in six sizes, including the Big Smoke, which is furnished both with and without shield. The larger sizes are best, as they hold more fuel, give more smoke, require filling less often, and are especially recommended to those who work with their bees several hours at a time.

Write for our complete catalog of bee supplies and accessories. Special circular of all sizes of Bingham Smokers free for the asking.

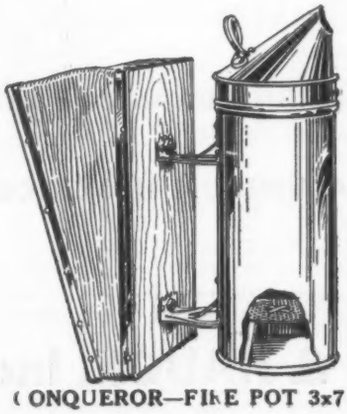
A. G. WOODMAN CO.

240 SCRIBNER AVE., N. W.

GRAND RAPIDS, MICH., U. S. A.

NEW BINGHAM BEE SMOKER

DOCTOR—FIRE POT, 3½x7



CONQUEROR—FIRE POT 3x7

LITTLE WONDER—FIRE POT 3x5½

A SUPERIOR QUALITY AT LESS COST

SUPPLIES

A SUPERIOR QUALITY AT LESS COST

(MADE BY THE DIAMOND MATCH CO.)

Reason why our Prices are Reasonable

1. Our supplies are brought to us in cargo lots by steamer from California through the Panama Canal. The resulting saving in freight cost is passed on to our customers.

One Story Complete Dovetailed Hives

With metal telescope cover, inner cover, reversible bottom Hoffman frames, nails, rabbets.

STANDARD SIZE

Crate of five, K. D. 8-frame ---------- $12.65
Crate of five, K. D. 10-frame ---------- $13.25

JUMBO SIZE

Crate of five, K. D. 10-frame ---------- $14.25

FULL DEPTH HIVE BODIES

frames, nails, rabbets.

Standard size, crate of five, K. D. 8-frame ---------- $5.20
Standard size, crate of five, K. D. 10-frame ---------- 5.85
Jumbo size, crate of five, K. D. 10-frame ---------- 6.85

COMB HONEY SUPERS

For 4x5x1⅜ plain sections, including section holders, fence separators, springs, tins and nails.

Crate of five, K. D. 8-frame ---------- $5.60
Crate of five, K. D. 10-frame ---------- 6.00

HOFFMAN FRAMES

Standard size ---------- 100, $5.20; 500, $25.00
Shallow ---------- 100, $4.30; 500, $21.00
Jumbo ---------- 100, $5.80; 500, $28.00

DIAMOND BRAND FOUNDATION

Medium, 5 lbs. 68c lb.; 50 lbs. 65c lb. Thin super, 5 lbs. 75c lb.; 50 lbs. 72c lb.

ALUMINUM HONEY COMBS

Standard Langstroth ---------- $5.00 box of 10
Shallow Extracting ---------- $4.00 box of 10
Jumbo ---------- $6.00 box of 10

HOFFMAN & HAUCK, Inc., Woodhaven, N. Y.

CONTENTS OF THIS NUMBER

Hearing in the Honeybee—Wallace Park ----------297
Bulletin Reviews ---- 298 and 326-8
Diseased Bees Wanted ----------298
The Extracting Season—R. F. Holtermann ----------301
Laying Workers—G. A. Barbish--303
Editorials ----------304-5
Beekeepers of Jugoslavia—Alexander Toman ----------306
Season and Management—F. Dundas Todd ----------307
Novel Selling Ideas—A. E. Burdick ----------309
Culling Bees—Dr. J. H. Merrill--310
Local Selling of Honey—A. G. Woodman ----------312
Experience with Big Hives—Amos Burhans ----------313
The Why of the Big Hive—E. M. Cole ----------314
The Huber Letters ----------315
Labeling with Commercial Paste—E. G. LeStourgeon ----------316
Concerning Mites—H. E. Ewing--317
Beekeepers by the Way ----------317
Telescope Covers—L. H. Cobb---318
Granulation of Honey—A. C. Ames ----------318
Practical Plans for Honey Selling—John T. Bartlett ----------318
Grading the Queens—D. N. Howell ----------318
Legends About Bees—Wm. R. Reinicke ----------319
Black Bees Again—Henry Brenner ----------320
Editor's Answers ----------320-21
Italian or American Bred Queens—S. Cannell ----------322
Standard Hives—Nick Klein ----322
What's in a Name?—H. B. Parks-323
Limited Use of American Honey in United Kingdom ----------325
Iowa-Dakota Meeting ----------326
News Notes ---------- 325-329
Summer Meetings ----------328
Crop and Market Reports ------335

Lewis 4-Way Bee Escapes

Four exits from supers. Fits all standard boards. Springs of coppered steel. Made of substantial material. Price each 18c, postpaid.

Made by
G. B. LEWIS COMPANY
Watertown, Wis., U. S. A.
For Sale by All Dealers.

$797 Buys This 7-Room Home

Price includes lumber, millwork, paint, hardware, roofing, etc. House contains large living room, dining room, kitchen, three bedrooms with closets and bath. Materials cut to fit. Our system makes it easy for anyone to erect this attractive home. Send for special circular No.

THE ALADDIN COMPANY
BAY CITY MICHIGAN

TIN CANS

It is our opinion that tin cans have "hit the bottom." Prices are far below last year. 2½ lb. cans, 5 lb. and 10 lb. pails furnished in dust proof cartons of 100 and 50; also in re-shipping cases of 6, 12 and 24. Five-gallon cans in strong cases that will stand reshipping. Write for our prices, stating number and sizes wanted.

Dadant & Sons, Hamilton, Illinois

High Quality Three-Band Italian Queens by Return Mail

Untested Queens, 1, $1.00; 6, $5.50; 12, $10.00; 25, $20.00.
Select untested, 1, $1.15; 6, $6.20; 12, $11.40; 25, $22.25.
Select tested, $1.75 each.

Safe delivery and fullest satisfaction guaranteed.

FRANK BORNHOFFER
Mt. Washington, Ohio

HONEY CONTAINERS

We have some interesting prices to offer on honey containers. Send us a list of your requirements and let us quote you our prices.
2½-lb. cans in re-shipping cases of 24 and crates of 100 and 500.
5-lb. pails in re-shipping cases of 12 and crates of 100 and 200.
10-lb. pails in re-shipping cases of 6 and crates of 100.
1-gallon square or oblong cans with 1¾-inch screw cap in boxes of 6.
1-gallon square or oblong cans with 1¾-inch screw cap in crates of 100.
60-lb. square cans with 1¾-inch screw cap in cases of 2 cans.
16-oz. round glass jars in reshipping cases of 2 dozen.
6½-oz. tin top tumblers in re-shipping cases of 4 dozen.
Shipping cases for comb honey for any style sections in the 24-lb. or 12-lb. size.
Send for our catalog showing full line of Bee Supplies.

AUGUST LOTZ COMPANY, Boyd, Wisconsin

QUEENS **QUEENS**

KNIGHT'S THREE BANDED

Give them a trial and be added to my book of satisfied customers

PRICES FOR BALANCE OF SEASON:

1 Select untested --------$1.00
5 Select untested--------$4.75
10 Select untested--------$8.50
Tested Queens -------$2.00 each

For larger quantities write for prices.

I have the bees, men and equipment to handle rush orders by return mail. Pure mating and satisfaction guaranteed. It is left with customer to say what is satisfaction. No disease.

JASPER KNIGHT, Hayneville, Alabama

A NEW SELLING HELP

A four-page leaflet in five colors, with two pages of concise information about honey and one page of recipes, to place in the hands of your customers.

The information which you wish to convey to the consumer is condensed into brief paragraphs which he can quickly and easily read.

The attractive picture in colors on the first page will catch and hold his attention until he has read your message.

Every honey producer should have a supply of these leaflets for general distribution.

Price, with your name and address printed on first page, 500 for $6.50, or 1,000 for $10. Each additional 1,000, $8.50.

Send for free sample today

AMERICAN BEE JOURNAL, Hamilton, Illinois

JUST OFF THE PRESS

A NEW EDITION

LANGSTROTH ON THE HONEYBEE

¶ This book regarded by many as the most important contribution to the literature of beekeeping has again been revised and brought up-to-date by C. P. Dadant.

¶ The style of the book has been entirely changed. The page is larger, a frontispiece in color is included and many new illustrations have been added.

¶ This book containing the best from the lifework of three widely known apiarists—Langstroth, Chas. Dadant and C. P. Dadant should be in the library of every up-to-date beekeeper.

¶ 448 large pages, durable cloth binding.

Postpaid $2.50.

AMERICAN BEE JOURNAL, Hamilton, Illinois

Absender
Edgar Boedicker
Georgen im Breisgau
Papierpreiszuschlag
5 pf.
The A. I. Root Co. of Iowa
Council Bluffs, Iowa
Ver. Staaten v. Nord-Am.
The A. I. Root Co. of Iowa,
Council Bluffs, Ia.
Gentlemen:—Kindly send me your free
booklet, "Why Bees Prefer Airco Comb
Foundation."
I would be interested in getting your
price on ... pounds of ... foundation.
Name Edgar Boedicker
Address St. Georgen im Breisgau
The A. I. Root Co. of Iowa
Council Bluffs, Iowa

Mr. Edgar Boedicker—Germany—Got his Copy

"Why Bees Prefer Airco Foundation"

HAVE YOU?

He wants to know about the interesting experiments conducted, which proved conclusively that bees take to Airco first—why it will increase his yield and, in a season's time, save him real money. That's why he sent the Service Coupon to us.

Have you got **your** supply of Airco? We are milling it at Council Bluffs, Iowa. Let us quote on your season's needs.

SERVICE COUPON

A. I. Root Co., of Iowa,
Council Bluffs, Iowa.

Gentlemen: Kindly send me your free booklet, "Why Bees Prefer Airco Comb Foundation."

I would be interested in getting your price on ---------- pounds

of ---------- foundation.

Name ----------

Address ----------

THE A. I. ROOT CO. OF IOWA
COUNCIL BLUFFS, IOWA

HEARING IN THE HONEYBEE

By Wallace Park

With all that has been written about the auditory sense of insects, it is still contended that it has never been demonstrated beyond a doubt that any insect can really hear. Few students of insect behavior doubt that insects can hear, but positive evidence apparently is lacking.

In the April (1922) issue of the Journal of Comparative Neurology, N. E. McIndoo, of the Bureau of Entomology, the well-known author of several research papers on sense organs in honeybees, reports on his recent investigations of the auditory sense of the honeybee. Mr. McIndoo gives the following reasons why it is usually believed that insects can hear: (1) many have special sound-producing organs; (2) some have so-called auditory organs; and (3) many of the experimental results obtained indicate that insects can hear.

Experiments which he performed to determine how bees make sounds showed that the loud buzzing of bees is made by the outer distal portions of both pairs of wings. But the special sound-producing apparatus was found to consist of certain membranes located at the bases of the front wings. Muscles, lying in the thorax and attached to these membranes, cause a rapid vibration of the membranes, thus producing the piping, teeting, or squealing noise commonly heard when a bee is squeezed.

Up to the present time, five different organs or sets of organs have been described as the organs of hearing in the honeybee. After making an extensive microscopical study of the anatomy of these so-called auditory organs, the author's judgment is that the (1) pore plates, (2) Forel flasks, (3) pit pegs, and (4) Johnston's organ, all located in the antennæ, do not seem to be well fitted to act as sound receptors; but that the (5) chordotonal organs, lying in the tibiæ might be better adapted for this purpose, providing they had an external portion corresponding to the tympanum.

It would appear that the sense of hearing in the honeybee and other insects may be so radically different from our own as to make extremely difficult the discovery of their auditory organs. The determination of the special sound-producing apparatus by Mr. McIndoo is, however, a direct addition to the sum total of our beekeeping knowledge.

Iowa.

The Bee Law Book

We learn from President Le Stourgeon that work on the compilation of laws that concern the beekeeper is under way. Mr. Campbell has nearly completed the research necessary and the preparation of the manuscript for the printer will soon be completed. This is a much-needed work and we look forward with interest to its publication.

MONEY AND SATISFACTION FOR YOU

Save one profit by buying direct from factory. Standard, Jumbo and Modified Dadant Hives; cedar or pine. Write for catalog.

A. E. Burdick Co., Sunnyside, Wash.

PORTER BEE ESCAPE

SAVES HONEY TIME MONEY

For sale by all dealers

If no dealer, write factory

R. & E. C. PORTER, MFRS.

Lowistown, Illinois, U. S. A.

(Please mention Am. Bee Journal when writing)

QUEENS OF

Moore's Strain

OF ITALIANS PRODUCE WORKERS

That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested Queens, $1.25 each; 6, $6.50; 12, $12. Select Untested Queens, $1.50 each; 6, $8; 12, $15. Safe arrival and satisfaction guaranteed. I am now filling orders by return mail.

Circular free.

J. P. MOORE, Queen Breeder
Route 1, Morgan, Kentucky.

75c each

One or more SELECT Untested
THREE-BAND ITALIAN QUEENS
No poor-appearing queens will be sent.
A satisfactory sale guaranteed.
No disease.

D. W. HOWELL, Shellman, Ga.

SANCO QUALITY

BEES AND QUEENS

Threebanded, Leather Colored. Also Goldens. They are bred from Imported Stock and crossed with Root's Breeders.

QUEENS

1 Untested	$1.00 each
12 or more	.90 each
Tested Queens	2.00 each
12 or more	1.75 each

NUCLEI

2-frame Nuclei with Queen	$3.95 each
3-frame Nuclei with Queen	4.95 each

Orders filled promptly. Satisfaction and safe arrival guaranteed. There is a health certificate with every package.

SANCO BEE COMPANY
East Main St., Fredericksburg, Ohio.
Bee Supply Catalog upon request.

3-Band Queens

That for Gentleness, Hardiness and Honey-gathering qualities you will find unexcelled.

Untested, $1; 12, $11.40; 25, $22.50;

Select untested, $1.25; 12, $13.50; 25, $25.00.

Select tested, $2.25; 12, $24.00; 25, $45.00.

All queens fully guaranteed.

HERMAN McCONNELL
Robinson, Illinois.

A NEW BEE BOOK
"Dadant's System of Beekeeping"
Send for a copy today.
Price $1.00.

TENNESSEE-BRED QUEENS

Fifty Years' Experience in Queen-Rearing
Breed Three-Band Italians Only

	Nov. 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested	$2 00	$ 8 50	$15 00	$1 50	$ 7 50	$13 50	$1 25	$ 6 50	$11 50
Select Untested	2 25	9 50	18 00	1 75	9 00	16 00	1 50	7 50	13 50
Tested	3 00	16 50	30 00	2 50	12 00	22 00	2 00	10 50	18 50
Select Tested	3 50	19 50	35 00	3 00	16 50	30 00	2 75	15 00	27 00

Select tested, for breeding, $7.50.

The very best queen, tested for breeding, $15.

Capacity of yard, 6,000. I sell no bees by the pound or nuclei, except with high-priced tested and breeding queens.

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

JOHN M. DAVIS, Spring Hill, Tenn.

"Five colonies of your stock produced 2,660 finished sections—the best one 616 finished sections." JOHN M. BIXLER, Corning, Iowa, February 1, 1921.

New Departure in Bulletins

Heretofore the beekeeping literature in this country has been prepared with a view to general adaptation to the entire United States. Now comes a series of bulletins designed to present the practice best adapted to a particular region. This should meet with popular favor, since the novice will not be misled into practice not adapted to his locality.

The first of this series, "Beekeeping in the Clover Region," is Farmers' Bulletin 1215, the next "Beekeeping in the Buckwheat Region," is Farmers' Bulletin 1216, and "Beekeeping in the Tulip-Tree Region" is number 1222.

All three of these bulletins are by Dr. E. F. Phillips and his former assistant, George S. Demuth. Written by men of authority, the teaching may be accepted with confidence.

Copies may be secured through your Congressman or from the U. S. Department of Agriculture at Washington.

Another Bulletin

"Beekeeping in the Interior of British Columbia" is the title of a new bulletin of about 20 pages which has recently come to our desk. It is published by the British Columbia Honey Producers' Association, and we presume was prepared under the editorial direction of W. J. Sheppard, of Nelson, who is the Secretary-Treasurer of that organization. Those interested in information especially applicable to British Columbia conditions will do well to write to Mr. Sheppard and ask for a copy.

Diseased Bees Wanted

Dear Mr. Dadant:

I shall appreciate it greatly if you will ask through the American Bee Journal that beekeepers finding any adult bees that show abnormal conditions will send samples to this office for examination. Last summer a considerable number of samples of adult bees were examined and no mites causing the Isle of Wight disease were found. While it is hoped that the mite is not found in this country, there still remains the need for further search, and this office will be glad to have such material. Queen-breeders and others who have imported queenbees from foreign countries should carefully examine the colonies to which the queens were introduced and if anything unusual is found samples should be submitted. It will be well to send about 250 bees where it is feasible, together with a description of the conditions observed. In some bees recently examined, which came with imported queens, unusually heavy infections of **nosema apis** were found, but so far the mite, **Acarapis woodi**, has not been encountered in such cases. Your co-operation in obtaining additional material for examination will be greatly appreciated.

E. F. Phillips, Apiculturist.
Bureau of Entomology.
Washington, D. C.

SHOULDERS OF STRENGTH

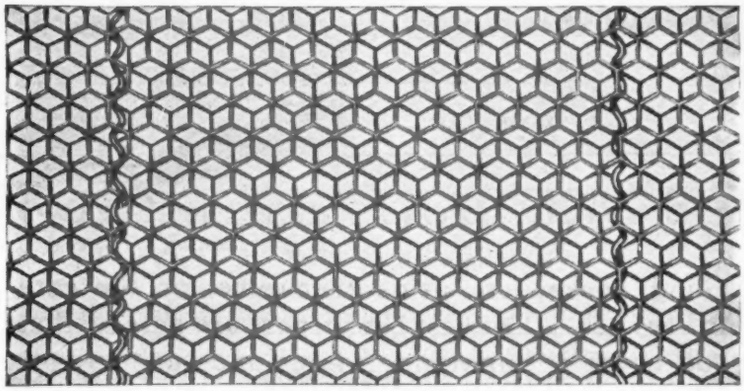
IN

DADANT'S

Makes non-sag all-worker comb

WIRED

Cuts out cost and labor of hand wiring



Quickly accepted by bees without reservation

NON-SAG

The finished comb a delight to the eye

Patented

WIRED FOUNDATION

NOTE THE CRIMPS in the wires. These are permanent, even under weight, and they reinforce the comb with angles of support radiating in all directions.

THIS IS AN ENTIRELY NEW IDEA in foundation making. The wire, woven into the wax by machinery, makes a rigid yet flexible sheet, producing a straight, desirable, **non-sag** comb.

DON'T BE DECEIVED by evidence from previous experiments with vertical wiring. There is no precedent for this new means of support, affording **radiating shoulders of strength throughout the comb.**

TESTED BY TIME AND USE. Dadant's Wired Foundation is not an experiment of a few months' time, but is a carefully evolved specialty of a life-time of foundation specialists. It has also been thoroughly tested for several years in large apiaries in all parts of the United States.

DADANT'S WIRED FOUNDATION may be used in new-style split bottom-bar frames or in the old-style one-piece bottom-bar frames with equal satisfaction. It is also adaptable to any size and style of brood or extracting frame.

COSTS NO MORE. Since Dadant's Wired Foundation cuts out the cost and labor of wiring, its extra price of three cents per pound above the catalog prices of old style foundation is thus more than returned to the beekeeper.

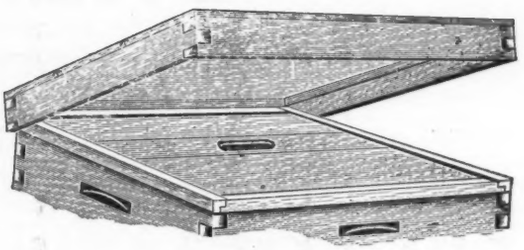
ASK FOR SAMPLES. A small mailing sample sent free on request. **Special Offer:** A sample of seven sheets, for either split bottom-bar or old style one-piece bottom-bar frames will be sent, postpaid, to any address in the United States for $1. Specify size desired. Only one sample to a person.

Wired Foundation is sold by all distributors of Lewis "Beeware" and Dadant's Foundation. Send them your orders.

DADANT & SONS, HAMILTON, ILLINOIS

Catalog and Prices on Foundation, Bee Supplies, Beeswax, Wax Working into Comb Foundation and Comb Rendering for the asking

ARE YOUR BEES WORTH A GOOD HIVE COVER?



¶ Good beekeepers pride themselves on the care their bees get. The best beekeepers are agreed that a good cover is important, winter and summer, for ventilation, protection and manipulation.

¶ Good metal roof covers feature: Full thickness lumber in rims, dovetailed corners, tops that fit into side rim rabbets, heavy gauge galvanized metal turned well down over the sides, bee tightness.

¶ Good inner covers have: Heavy ends rabbeted to hold top pieces nailed both ways, substantial rims giving adequate bee space, rounded hole for bee tight escape.

¶ You always get all these features in Lewis "Beeware." Our competitors are now imitating them. As usual, Lewis first.

May we send you a Lewis "Beeware" Catalog, Free?

BEE HIVES AND APIARIAN EQUIPMENT
BEWARE
WHERE YOU BUY YOUR
BEEWARE
WATERTOWN WIS. U.S.A.
MAKES THE FINEST.
COPYRIGHT, 1910, BY G.B.LEWIS COMPANY

G. B. LEWIS COMPANY

HOME OFFICE AND WORKS

WATERTOWN, WIS., U. S. A.

Distributors Throughout the U. S. A.

BRANCHES: ALBANY, N. Y., LYNCHBURG, VA., MEMPHIS, TENN., WICHITA, KANS., DENVER, COLO., FROMBERG, MONT.

AMERICAN BEE JOURNAL

VOL. LXII—NO. 6 HAMILTON, ILL., JULY, 1922 MONTHLY, $1.50 A YEAR

THE HONEY EXTRACTING SEASON

By R. F. Holtermann

TO do the work of extracting the season's honey with the least outlay of labor, preparation must have been made previous to the time when that work is begun. Supers, covers, queen excluders and brood chambers should fit accurately, and there should be no brood in the combs which are to go above the bee-escape boards.

Wire Cloth Bee-Escape Boards

Today no beekeeper is wise who attempts to extract honey without the use of a bee-escape board. I much prefer the wire cloth bee-escape board. The bees will pass out just as readily, and the danger of smothering the bees when several supers are on top of it, and the only ventilation is through the escape board, is done away with.

Robbing Supers

The beekeeper must remember that when the bees have left the supers, those supers are no longer protected by bees, and if there are any openings giving access to outside bees, and the robbing season is on, they will be robbed out. Therefore, it is of prime importance that the various connections above the bee-escape board should fit together closely.

If one is in the apiary half an hour after the boards have been put in place openings can be detected by seeing the bees run out of them in a procession. Even where there are cracks too small to allow entrance for a bee, it is necessary to close them tightly, for the bees will smell the honey, and this may set up in them a spirit of robbing, and then they will be ready to pile into the supers the moment they are uncovered.

If no excitement has previously been created a careful beekeeper should be able to remove all the supers from 100 colonies without allowing robbing.

It is most convenient to remove escape boards after getting the supers away, but it is most expeditious to do it at once. If the escape board is tipped to jar the bees from it the bees are more liable to sting than if held in the same position as when on the hive. There is a knack about this work difficult to describe.

In our apiaries we use a 12-oz. duck as a first cover over the top of the hive. Our covers, owing to little unevenness and sometimes slight warping, are not always bee tight. We see, probably the last time we go through them, that these cloths entirely cover the top of the hive. It is not well to leave it until the escape boards are placed, because, unless the cloths are propolized down the bees may raise them when the spirit of robbing possesses them.

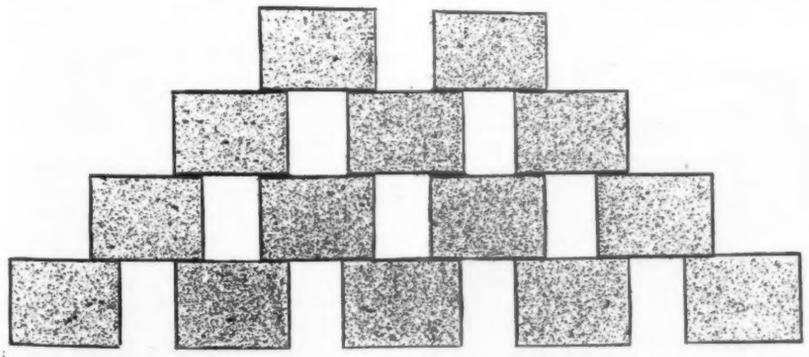
When to Place the Escapes

This is a question over which there has been a good deal of argument. If bees are gathering some from the field the supers are likely to empty more rapidly. The work will be done more quickly if the escapes are put on early in the morning, for directly after is the time when the bees are most likely to fly.

The escape boards are distributed through the apiary, one on each hive, before putting them into position. Every now and then a dead bee gets between the two springs; if these were left they might clog the exit for the bees in the super; they should therefore be examined at a glance before putting on.

Escapes will not work if there is any brood above them. This is one of the difficulties in doing without a queen excluder. When rapid work is to be done it is not pleasant to find supers of honey filled with bees. Such a condition happens every now and then even in the best regulated homes. We leave such until the last trip and then brush them, but it always means delay.

From E. T. Brainard, now President of the Ontario Beekeepers' Association, I received a device he invented. The purpose of the contrivance is to loosen the supers from the queen excluder. It consists of two strong pieces of iron three-fourths inch wide and one-half inch thick, with a bend on each piece at one end. The two pieces are riveted together at a point. The longer piece can be used as a lever, and when raised shortens the distance between the bends. The tool is applied to the back of the hive with one bent catching on the side of the brood chamber, just **below** the super, but not below the queen excluder. The bend on the other piece is hooked around the bot-



Holterman's method of piling supers to be cleaned by the bees in the open air.

tom of the super on the opposite side just **above** the queen excluder. Now if the handle on the longer piece is raised, it shortens the distance between the two bends and consequently pulls the pile of supers sideways and breaks the propolizing loose. Now the supers are ready to raise up. The escape after smoking the bees is inserted from the front of the hive as the supers are lifted. This is the "old man's" job—now my job.

But to show that I'm not lazy let me say that until last year I set the pace to all the students and men and sometimes I set the pace yet.

About lifting a pile of three, four, and sometimes more 12-frame Langstroth supers, let me say the more there are on the hive the better the boys appear to like it. That is the spirit in which pretty well all our work is done.

If time at all permits, we have little outings, and when the extracting season is over generally take a day to go to the best bass fishing ground in Ontario. Now I give fair warning, I have no secretary to answer letters and I have no time for visitors when our work is on. I fill a place in a gang and to step out of it means delay.

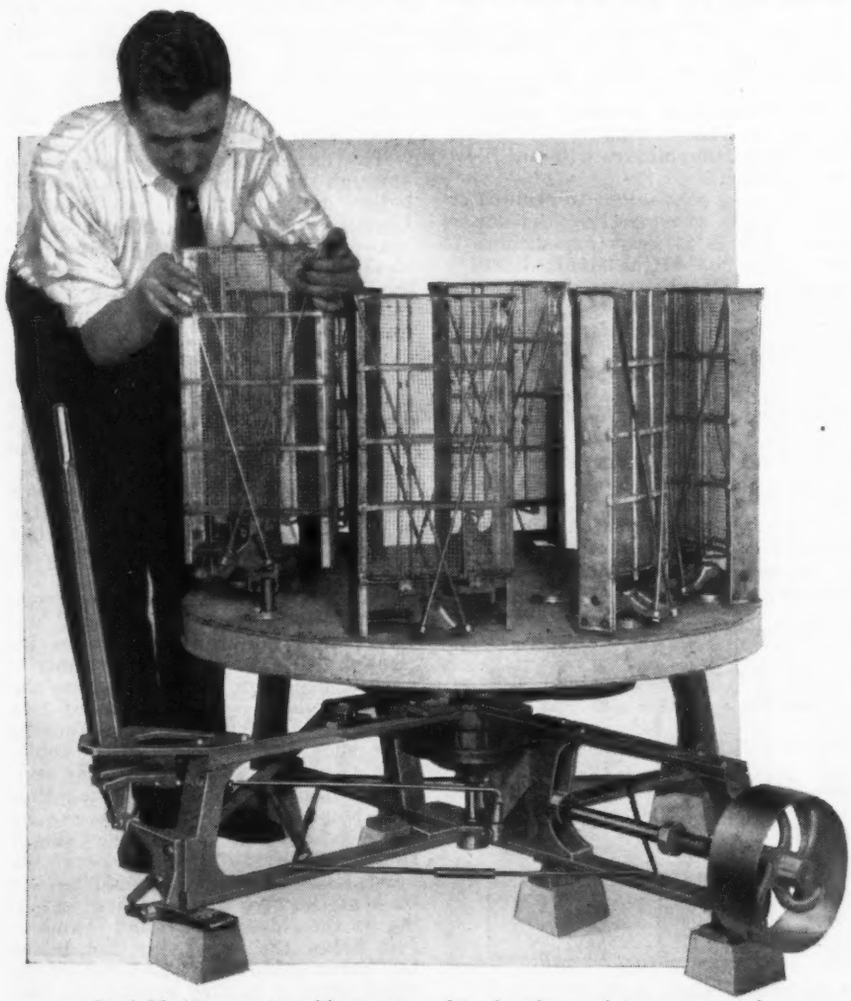
It now becomes a question of how long the escapes should be on before the supers can be removed. We have 200 bee escapes; our apiaries, as a rule, contain from 80 to 120 colonies. It is nice to have the combs in the bee house free of bees. If the escapes are left on three or four days the combs may have less bees on them than if left only 24 hours, but those having had only 24 hours may be as absolutely free from bees as those having had several days. The need of combs to extract may force us to giving the bees less time to pass into the brood chamber. I have removed the supers after 5 hours. It is dangerous to leave the honey a week or two, as I have known some to do. During that time the honey draws moisture, is likely to absorb germs of fermentation, which have given serious trouble before the honey was consumed. It is also very unwise to allow the combs of honey for extracting to stand in a honey house for a couple of weeks before extracting without artificial heat. I have known the same results from such practice.

Hauling the Honey

Old men like myself think nothing of getting out early in the morning, it is the best part of a summer's day. There is no better time to haul combs of honey from an apiary than during the very early morning. Extracting is best done with a rush; we have extracted 1,000 pounds in an hour when everything was working well, but 7,000 or even 6,500 pounds is our pace for a day. One man can haul in with a truck, but two of us work to better advantage. Sometimes I stay in the apiary and stack up a lot of supers ready to load upon the return of the truck. Honey from the apiary is best hauled with a truck. Before we extracted in each apiary, not a central extracting place as we now do, we used a light spring wagon or a truck and platform, or a wheelbarrow, or carried in supers, but I never was so low down as to carry combs of honey into the bee house by means of that "comb bucket" supply dealers used to sell.

The supers should be covered as they are put upon the truck, and if there are any robber bees in them we pull off one cover when we start and they will soon leave the load when it shakes about on the road. It is convenient to be able to haul the supers into the bee house. We have an old building now for extracting and the truck is backed to a door on hinges in the side of the building, where unloading is the first work inside as well as outside

The combs and supers are placed convenient to the uncappers, of which we have two. They use steam heated knives. A boy loosens the combs and raises one end of the comb out of the super by putting that end of the frame on its bottom bar, the latter resting on the top edge of the super. This saves time for the uncapper.



Lewis-Markle extractor with can removed to show how baskets are supported.

Disposal of Wet Combs

We never carry wet combs over the winter, but have the bees clean them out. Combs so left tend to the granulation of next season's honey, probably, also, to its fermentation.

I do not like to put combs back, it makes a lot of work in the autumn, when we are already loaded with work. But that is not the worst part of it. The tendency is, especially where the hive and supers have been well filled, for the bees to relieve the pressure in the brood chamber by carrying honey into those super combs, and as a result the beekeeper has a lot of dribs of honey to contend with when those supers are removed before winter packing.

These wet supers are generally piled about 6 o'clock at night, as shown in illustration, where the bees can have access to them from top and bottom. We put out about 100 at a time and the most of the excitement is over by dark. I prefer to pile them all within reach of one apiary and that where no other bees are about to steal out honey. It would be better to space the combs by hand, but that takes too long. There is a certain way of wabbling the super sideways so the combs rebound and space them fairly well.

It is needless to say that where dark, later honey is expected, one super at least should be returned to each hive, and the extracting should be done so the dark honey will not mix in.

(Evidently Mr. Holterman has no disease in his apiaries. It would hardly do to expose the wet combs where disease was present, as it would be a good way to spread it.—Editor.)

Ripe Honey

In my vicinity it would only be during very rare weather conditions—lots of moisture—that I would not extract it, capped or uncapped. Where all the honey is left to extract at the close of a clover and linden flow, I would sooner extract that honey just as it is than extract capped honey as soon as there is a surplus in it on the hive, for honey ripens after it is capped.

Honey House

As far as possible, every arrangement is made to have the machinery in perfect working order before extracting begins. We at one time had 25 honey tanks 6 feet high by 3 feet in diameter, with Scovell honey gates. This was when we extracted at each apiary. We now have enough tanks to hold a car load of honey, and do our extracting at one house, and that close to our shipping station. The tanks have flat covers which fit tightly on the tanks, and if a tank at night has enough honey in it to reach to skim we do not care to add to it the next morning, for the honey is best separated from foreign particles when it is warm. In warm weather, three or four days is a sufficient time. The wax and scum are removed from the top of the honey before commencing to fill. Pumping honey tends to make it granulate. This is an objection to the method. I can afford to criticise because I am of the opinion that I was the first one to suggest this way of conveying honey from the extractor to the tank. We try to extract the honey warm and allow the larger particles to go with the fine. This accelerates the upward tendency of all.

Unless the honey is warmed I know of no strainer which is within reach which will pass 800 to 1,000 pounds of honey per hour. The larger quantity is the limit of what we have reached.

The Honey Extractor

For three seasons I have been using the Markle honey extractor. It is the invention of Geo. Markle, Brantford, Ontario, Canada, in connection with the Ruddy Manufacturing Company, of the same place. This machine has ushered in what can justly be called a revolution in honey extractors. Up to the time that this extractor was placed on the market, the combs could not be reversed without stopping the machine. This extractor allows the combs to be reversed whilst the machine is running at full speed. Then the machinery for running the reel is underneath the comb basket. There is no cross-bar on top to obstruct the putting in and taking out of combs, and the baskets have no support at the top; they are built strongly and held in rigid position. In a test they had put in them instead of combs of honey, 3-inch hard wood blocks the size of the Langstroth frame raised 6 inches from the bottom of the basket and then run for twenty hours as if extracting honey. The machine stood the test. Everyone will admit this was a very severe trial.

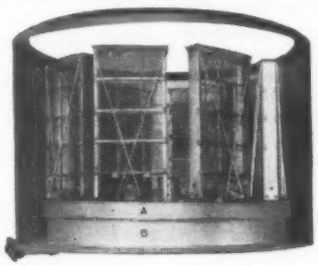
In testing the machine it was found that the honey would extract better if the basket was held at a slight angle, the cell slanting away from the direction in which the comb moved. As one man removes the empty comb from the extractor another follows, putting in a full comb. In this way the two operations require only one turn of the reel, and time is saved.

Uncapping and Cappings

We use steam heated honey knives and have two to uncap. The Biddell wax press is used. After testing and examining various capping melters, all have been discarded for this machine. It has been designed by O. W. Biddell,Earlville, N. Y. It works on the principle of a cider press, and one cheese can be pressed at a time. The thoroughness of the separation of honey and cappings is dependent upon the length of time the cheese is left in the press.

How to Work

In all beekeeping operations it is



Lewis-Markle extractor with portion of can cut out to show how it works.

well to study to cut out unnecessary moves, to avoid changing too often from one operation to another; in this way time is lost. One should concentrate on his work and take an interest in it. We should not think or "guess" that all is well and that the bees require no attention, but we should be sufficiently in touch with the situation that we know that all is well and that the bees require no attention. Chase your work and do not let your work chase you.

LAYING WORKERS

By G. A. Barbisch.

A few years ago colony No. 7 swarmed. In due time the young queen hatched, was mated and started laying. About ten days after, I found the young queen missing and laying worker eggs in both stories were present; from one to three in almost every empty cell. Repeated efforts to introduce laying queens, virgin queens and young queen cells ready to emerge failed.

No matter what I did, that colony had made up its mind it wouldn't have anything else except those laying workers. I had about made up my mind to scatter the combs all over my bee yard, putting in here and there a comb in strong colonies, which I had done before. It is about the only method to get rid of laying workers. One day a colony cast a second swarm which clustered on a small limb. I tried an experiment. I cut off the limb, carried it with that fairly large swarm to the laying worker colony and shook the bees down in front of the entrance and watched the results.

They marched in like good fellows and cleaned house in good style, for when about a week after I examined that colony not a trace of a laying worker egg was present. Everything was cleaned out, the young queen was just starting to lay and everything was O. K.

That colony was one of the strongest in the fall when bees were put in the cellar.

The past season I formed a number of nuclei to replace somewhat the loss I had on account of spraying. I made boxes to hold five frames. I then took three frames of hatching brood, bees and one frame of honey and one frame of pollen and partly empty cells; put these in the boxes with frame of brood having one large queen cell and closed the entrance with grass for about 24 hours. This is a splendid way to make increase, but it must not be done too late. During the latter part of the honey flow is the best time. One who has never tried this before has no idea how fast these nuclei will build up, and in from 10 days to two weeks must be transferred to regular hives. Having young queens, a vigorous force of young bees will make the best colonies for next season.

One of these nuclei lost its queen and when, a few days after, I looked over this nucleus, I found two frames with laying workers. I closed the hive and next day, without using smoke, and as quietly as possible, I lifted out the combs. My idea was to see if I could not catch one of the laying workers in the act of laying eggs. After watching for about 30 minutes I noticed a worker bee passing over the combs and looking in the cells the same as a queen does. Pretty soon she spread her wings and let her abdomen drop into the cell and there she hung for some time. I picked her off the comb and killed her. In about 20 minutes I caught another worker bee doing the same stunt, and in each cell there were two eggs, one in each cell, hanging on the side near the bottom. I watched for more than an hour for more of these laying workers, but no more were found. I exchanged these two combs and gave them another queen cell and they soon had a queen.

Minnesota.

Ohio Meeting

The annual summer field meeting of the Portage County, Ohio, Beekeepers' Association was held on May 23. The meeting was a combination of indoor talks and practical work with the bees. Talks were given by Mr. Shumway, County Agent; H. M. Leach, President of the Association, and E. W. Atkins. The afternoon was spent in visiting the apiaries of two of the members, where the beekeepers had an opportunity to see the comparative value of large and small hives. They also had an opportunity to see both European and American foulbrood, and a detailed discussion took place on the treatment of these diseases.

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language.
Published Monthly at Hamilton, Illinois.

Entered as second-class matter at the Postoffice at Hamilton, Illinois.

C. P. DADANT ..... Editor
FRANK C. PELLETT ..... Associate Editor
MAURICE G. DADANT ..... Business Manager
SUBSCRIPTION RATES—In the United States, Canada and Mexico, $1.50 per year; five years, $6.00. Other foreign countries postage 25 cents extra per year
All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

(Copyright 1922 by C. P. Dadant.)

THE EDITORS' VIEWPOINTS

FRUIT AND PRODUCE CROPS

It is the custom of the American Bee Journal to publish short notes concerning the crop and market of fruit and produce in the miscellaneous columns of each issue. Some may think such information not of much interest to beekeepers. When we consider, however, that honey is not generally considered as a staple product but is usually placed in the luxury class, we see at once that the quantity and price of berries, cherries, oranges, melons and similar products coming to market will have an indirect bearing on the honey markets.

In these days of close competition in all lines of business, it is necessary to study every factor entering into our marketing problems, as never before. We are using every effort to place dependable market information before our readers.

DIRECT SELLING

The most satisfactory market for the beekeeper who does not have a large crop to move is directly to the consumer. While it takes some trouble and time to establish such a market, once a good line of customers is secured, a steady demand can be depended upon at retail prices. The wholesale market fluctuates greatly from time to time, but the fellow who sells at retail can maintain a price which does not vary greatly from year to year.

ILLINOIS CONDITIONS

"Everybody works but father," they say, and that is perhaps why the editor has had, for the first time in his life, the good luck of attending field meets in June, during a good honey flow, in spite of a rush of work at home. He is evidently of little active value, and "fit to lay on the shelf." But he keeps doing something just the same, as street-corner loafing has never had any attraction for him.

Well, the bees were swarming, in every direction, and once again we are convinced of the insufficiency of eight-frame hives in swarming time. In one apiary of 60 colonies with both eight and ten-frame hives, three swarms were out at the same hour, and all of them evidently secondary swarms.

By the way, do not forget, if you ever wish to return a secondary swarm to the hive and avoid its emerging again, that the best way is to hive it in any kind of a box, keep it 24 hours, then return it to the hive from which it emerged. At that time, as the hive has returned to normal, the young queen usually succeeds in destroying either the remaining queen cells or the young queen that may have hatched in her absence, and the swarming fever is over for good. This sometimes succeeds, even with primary swarms, especially if the colony has been supplied with plenty of super room and has been given additional ventilation.

Foulbrood is being fought all over Illinois. But, as in some other states, there is a lack of unity of action. Every county in the State should secure a local inspector of apiaries, who will help beekeepers both by inspection and instructions. This is the only way in which a fight to the finish can be carried on through the entire country. What is true of Illinois is correct in a number of other states. Only a few of our states have a good method for fighting and destroying foulbrood. There is a tendency on the part of some beekeepers to discouragement. Although we kept bees for 40 years before we ever saw foulbrood, we finally had to fight it; and we harvested our record crop, eight years afterwards. Foulbrood is a blessing in disguise, as it compels beekeepers to take care of their bees.

Each county in the State of Illinois should have a County Association and should secure an appropriation from the County Board of Supervisors, to enable it to employ some good man as County Inspector. A hundred dollars from each of the 102 counties would yield over $10,000 which, added to the State appropriation, would be ample to crush foulbrood out of existence, if this is kept up two or three years. This remedy will apply as well to many other states.

It is rare now for members of the old-time associations to meet one another. Mr. H. W. Funk and the editor met at the Lilly meeting, in the Funk orchards, and were reminded that they had met before, in 1885, at the International Beekeepers' Convention of New Orleans. Very few beekeepers who attended that meeting are alive today; we would be glad to hear from them.

THE DADANT BOOKS IN FRENCH

The French edition of the latest revision of the Langstroth-Dadant "Honeybee" is apparently delayed beyond reason in the printer's hands at Paris. Conditions have not returned to normal in suffering France. The French edition of the "Dadant System" is being printed in Quebec, and we hope to have it soon for the French readers of beekeeping.

The French edition of the "First Lessons" is still in abeyance, waiting for the other two books to appear.

THE MID-WEST SHOW

The attention of the beekeepers of the United States is called to the Fourth Mid-West Horticultural Exposition, which will be held at Council Bluffs, Iowa, November 13-18, 1922. This exposition will include exhibits of fruits, vegetables, flowers, nuts, honey, nursery stock, home canned and dried fruit products. A total of $10,000 will be offered at this Exposition in cash premiums. In connection with the Fourth Mid-West Horticultural Exposition, there will be held the annual meeting of the American Pomological Society. Several State societies will also hold their annual meeting in connection with the Exposition.

The Honey Department this year offers cash premiums of $600. There is one class open to association exhibits and several classes are open to individual exhibits. Any beekeeper or any association in the United States is eligible to make entry for this Exposition. The premiums are large enough to atract competition from many sections. The preliminary premium list is available and can be had by addressing R. S. Herrick, State House, Des Moines, Iowa, or F. B. Paddock, Ames, Iowa.

It is expected that the beekeepers of many states will avail themselves of this opportunity to have their product displayed in conjunction with the Horticultural Exposition. In the past many thousand people have visited this Exposition and some have had honey presented to them in a new way, which has certainly resulted in increased consumption.

QUEENLESSNESS FROM SWARMING

When we harvest a natural swarm from a colony, we are aware of the fact that this mother colony will soon have a young queen laying, provided she mates properly. It happens quite often that the young queen is lost in her wedding flight, especially when the colonies of the apiary are gathered together in long, uniform rows, as is too often the case, and the young queen "drifts," or in other words enters the wrong hive. She is killed, and as her hive, at that time, has no longer any young brood, since the old queen has been away for a week or more, the colony becomes hopelessly queenless. This difficulty causes more losses of colonies in carelessly kept apiaries than all other causes put together. It is of these hives

that the backwoods beekeeper says: "The moths killed my bees." Our experienced beekeeper knows this very well, but he often, himself, delays or neglects watching the colonies which have swarmed, until too late.

Let us never forget that every colony which has swarmed should be carefully examined 20 or 25 days after the departure of the swarm, and in case of doubt should be given young brood from a good queen, or, if it is found positively queenless, it had best be given a young queen already fertile; otherwise it will be necessary to unite it with another colony, for the population diminishes rapidly in summer.

SWARMING DURING FRUIT BLOOM

Never, in our entire experience, since 1864, have we seen bees change from near-starvation to a crowded condition of the brood chamber with honey, on fruit bloom, in so short a time. The result was an upsetting of all our experience on swarming. The bees lost their heads and evidently concluded that they could not keep things a-going without swarming. So dozens of colonies began to make preparations, by building queen cells. And when we were ready to give up all our long acquired views concerning methods of swarm prevention, Boreas came to the rescue with a strong blow, after some soaking rains, and the bees bowed to the inevitable and wisely ended their swarming preparations, to the sorrow of the back-lot beekeeper who was looking for a wonderful increase by natural means. We were pleased, however, for we were not prepared to handle hundreds of swarms.

The regretted F. W. L. Sladen, Apiarist of the Canadian Dominion in years past, often assured us that our methods of swarm prevention would not be sufficient in Canada, because the honey crop comes there at a bound and the bees are taken by surprise, usually, in such a way as to lose all control of their usual moderate behavior. We can understand this, after having seen this year's performance. Nevertheless, our methods will still limit the craze of natural swarming to the lowest possible percentage.

BEES BUILDING DRONE CELLS ON FOUNDATION

The report of one of our beekeepers that the bees built drone cells on perfectly sound and well printed worker foundation gives another instance of abnormal conditions, which may be classified with accidents. The first instance which we had of drone cells built on worker foundation was seen at the apiary of that capable honey producer and queen breeder, J. F. Diemer, of Liberty, Missouri. Mr. Diemer exhibited to us two combs, all worker cells on one side, all drone cells on the other. The bees had disregarded the triangular bases of the cells in order to build drone cells which, of course, did not match the worker cell bases. We suggested that those two combs had been the outside combs in brood chambers, and Mr. Diemer thought this was correct. There is no way to remedy such an abnormal condition except by entirely removing the comb in question and offering the bees an opportunity of redeeming their reputation by giving them another sheet of foundation to work.

Our old and experienced friend, Mr. Crane, of Vermont, told us that he has had such undesirable results occasionally, but that the combs thus ill-built did not average 2 per cent of the entire number of combs worked out from well printed foundation.

SOME DIFFICULTIES OF A QUEEN BREEDER

During the latter part of May and the early part of June one of our good queen breeders, Mr. Jes Dalton, of Bordelonville, La., was obliged to drop all of his correspondence, even to the acknowledgment of orders, that he might use all of his energy, his trucks, etc., to help maintain the Mississippi levees in his district, as water was from one to two feet higher than it had ever been before, with prospects of breaking if the water rose any higher.

Naturally, orders for bees from this queen breeder, as well, probably, as from several others, were necessarily delayed, nor could they have been handled had there been more time, inasmuch as all shipping facilities were paralyzed, owing to the high waters.

We were informed that in one place a rural railroad was running with water so high that it was necessary to elevate the firebox in order to maintain steam.

Such instances, of course, are fortunately infrequent, but there are other difficulties besetting queen breeders which we of the North should take into consideration when we get impatient over delay in shipment.

ROWDYISM

Mr. Ben G. Davis, of Spring Hill, Tenn., has had to suffer from rowdies who upset a large number of his nuclei. He reports 98 queens missing, and ascribes this brigandage to the fact that, as mayor of his town, he has had occasion to prosecute ill-doers, who revenged upon him in this way. A highway robber is despicable, but the man who destroys property through vandalism is still lower in the scale of humanity.

WHY DO SWARMS RETURN TO MOTHER HIVE?

This question is asked from all sides. There are many reasons which may cause bees to return to the hive after swarming and alighting. But the most important of all and that which is probably responsible for most of the events of this kind which occurred this summer is the fact that the old queen has either departed with a first swarm or has been superseded. When the young queen takes her bridal flight the bees follow her, but of course settle in the close neighborhood and return to the hive when they find that the queen is not with them. It also happens that the young queen alights with the swarm. The swarm is hived; but the next day the queen again leaves for another bridal flight, for she has probably not succeeded in mating on the first day. The swarm then either leaves with her without settling, or returns to the parent colony.

There are other reasons which cause swarms to depart or return home; but from my experience that is the most common of all. More of this has happened this summer than ever before, at least in the Central States, because the early flow of honey has caused bees to lose their heads and swarm unreasonably. Such occurrences do not happen more than one year in twenty.

P. H. ELWOOD

We are sorry to announce the death of the above-named beekeeper. The passing of Mr. Elwood removes another of the progressive early pioneers who followed the lead of Langstroth and Quinby, during their lives.

Mr. Elwood was four years older than the editor of this magazine, and was President of the National Association when our editor was its Secretary. He was a very able presiding officer.

Mr. Elwood was a believer in large hives, even for comb honey production. He was a very modest man and wrote but little for publication, but he was perhaps one of the most practical honey producers of the end of the last century, and very highly esteemed among his peers.

At the time when Mr. Elwood was President of the National, or, as they called it, North American Beekeepers' Association, in 1891, he was also President of the United States Honey Producers' Exchange, and of the New York State Beekeepers' Association. The meeting at which he presided was held on December 10-12, 1891, at Albany, N. Y.

A biography of Mr. Elwood and his phote will be published in our next number.

WIRED FOUNDATION

Some readers want us to say something in the editorials concerning that new wired foundation. No, No! We will not talk shop in the editorial columns. That thing talks for itself anyhow. Wired foundation is a patented product controlled by the Dadants. The Dadant hive is not patented, and is made by others, and not by us, so can be discussed with propriety in our reading columns.

BEEKEEPERS OF JUGOSLAVIA

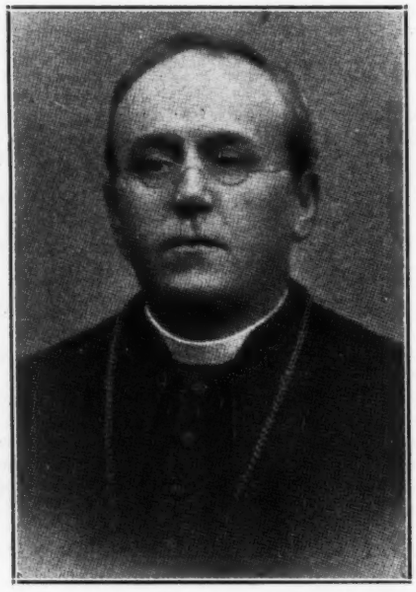
By Alexander Toman

ON July 23, 1921, the delegates of the Provincial Association of Beekepers of Jugoslavia, held in Osijek (Slavonia) their first convention for the purpose of founding a national organization for the benefit of the common interest of all Jugoslavish apiculturists. The delegates represented all the countries now united in the new Kingdom.

As the first President of the newly founded national organization they elected Mr. M. Humek, Ljubljana, Slovenia; First Vice President, Mr. Sv. K. Gjargjevich, Belgrade, Serbia; Second Vice President, Mr. J, M. Ljubich, Osljek, Slavonia. In the Administrative Committee they elected Messrs. Dr. Langhofer, Zagreb, Croatia; Jos. Retchaj, Vukovar, Slavonia; Fab. Dilber, Serajevo, Bosnia, and J. Antonioli, Split, Dalmatia.

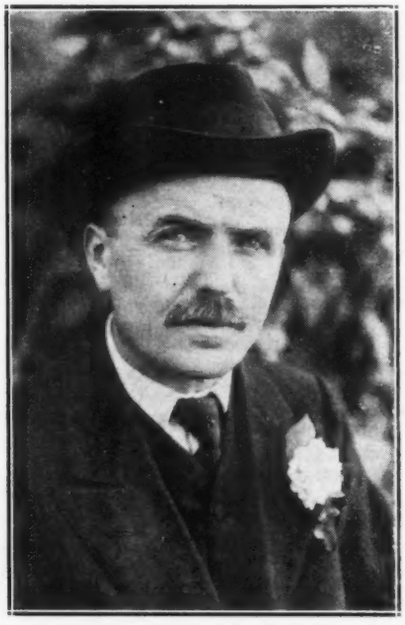
For each 500 members one delegate will be elected. The activities of the National organization then began and the statutes were forthwith sent for approval to the Central Government in Belgrade.

Mr. M. Humek, the first President of the National organization, is an employee of the Government in the capacity of a High Inspector of Horticulture and Apiculture, is further, editor of "Slovenski Tchebelar," (Slovenish Beekeeper), and "Slovenski Ladjar" (Slovenish Orchardist). This gentleman is generally acknowledged as a very capable worker, not only in the branches within his sphere, but as a practical and efficient demonstrator—a thing which in Jugoslavia should be the most important attribute of every official connected with agricultural education. Jugoslavia is an agricultural state; agriculture is the basis of its existence and the main source of its wealth. Good, effective farming will make it strong and mighty internally and externally.



Rev. Andrea Kalan, President of the Association of Slovenish beekeepers.

The United States of America give in this respect the most convincing example. Mr. Humek shows by his words and deeds that we can, by force of will and determination of spirit, strive to achieve proportionately the same results in matters agricultural as well as the United States has achieved. The right stuff in our people is present and what we as a subjugated people could not accomplish in the arts of agriculture, industry and mental culture, we certainly will "make good" as a nationally independent, united and free people, because we will work for our own benefit, for the good of the civilization of the whole world and not for the enrichment of our enemies which kept us in political, economical and cultural slavery.



Mr. Frank Rojina, one of the pioneers of advanced methods in Slovenia, and a well-known writer on beekeeping.

That the countries of Jugoslavia belonging before the war to Austro-Hungary were in every respect under German influence must surprise nobody, because the Slavish element was robbed of all educational means which could lead it to a higher standard of culture.

What these people have achieved in education they did by their own efforts and sacrifice, trying to develop their natural faculties in such a way as to be in touch with the progress of the times. Their former governments tried in every way to hinder these endeavors and very often suppressed schools and educational institutions established and supported by voluntary subscription of the people.

And in this way the art of beekeeping also had to depend on theories and practices brought by Germans in these countries.

Only in the last decade prior to the war, some Jugoslavish beekeepers improved the methods and implements pertaining to apiculture. In this connection the Slovenish Beekeepers' Association and its organ, "Sloveniki Tchebelar," (Slovenish Beekeeper), have done very much for the development of beekeeping. This Association will soon celebrate its 25th anniversary. This event will give occasion for the first national exhibition of beekeeping products, implements, etc.

Mr. Jan Strgar, well-known breeder and exporter of Alpine Carniolan bees.

A very good and desirable thing it would be if American beekeepers, manufacturers of apicultural implements and other interests, would participate with their products and presence. Any desired information about this matter can be obtained by writing to the editor of "Slovenski Tchebelar," Mr. M. Humek, Ljubljana, Jugoslavia.

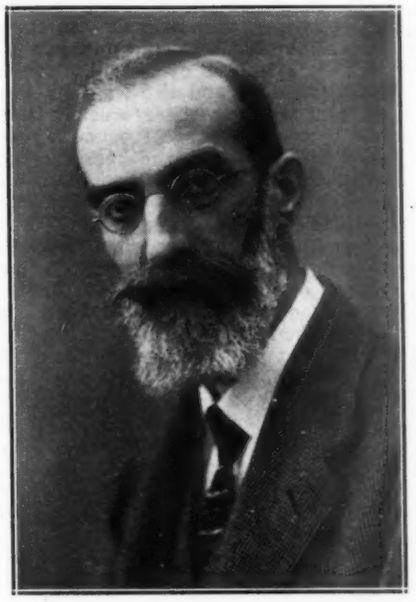
Since the Agricultural Association in Ljubljana, 1911-12, began its propagandistic campaign for the export of the Carniolan Alpine bee (Carniola was called, under Austro-Hungary, the northwestern part of Slovenia), the intercourse between American and Jugoslavish beekeeping interests became closer. A booklet called "The Carniolan Gray-Banded Alpine Bee," published by the Agricultural Association, 1912, in English, has certainly contributed some to this. This Association has at the same time published a translation of "Rearing of Queen Bees," by Dr. E. F. Phillips. This book has had, as a result, that the beekeepers of this country have since then practiced a more careful selection of queens for breeding purposes and some of them have started artificial breeding of queens, as is described and illustrated in Dr. E. F. Phillips' book.

The "Slovenski Tchebelar" has, these recent years, published articles treating of American methods of bee-

keeping, which were eagerly read by the subscribers of the paper and beekeepers in general.

In the last few months this paper published the following translations from the American Bee Journal:

"State and Local Organization," by E. C. Miller; "The Principles of Breeding Applied to Bees, by Geo. A.



Mr. August Bukovec, an expert beekeeper and student of beekeeping problems.

Coleman; "The Ideal Bee," by John Protheroe. Further, it published matter from the editorial pen of the American Bee Journal. In the September number it published a translation from "Gleanings in Bee Culture."

Professor Jager, of the State Agricultural Farm in Minnesota, who is teaching beekeeping, is a Jugoslovene and in his capacity will certainly do his best in introducing American beekeeping methods and improvements in his native country.

A couple of years ago a young Slovene, Mr. M. B. Miklantchitch, emigrating to the United States, chose beekeeping as a vocation and is at present employed in Janesville, Minn., at the apiaries of Mr. Hofmann. He has already written something for the American Bee Journal ("Glimpses of Carniolan Beekeeping"), but his main literary work consists in contributing to the "Slovenski Tchebelar." In almost each of its issues this paper has something from his pen relating to American beekeeping. In the April number of Tchebelar he published: "How We Keep Bees in America;" in May, "Are We on the Right Way?;" in June, "Beekeeping as a Vocation;" in July, "Golden Rule of American Beekeeping."

His article, "Are We on the Right Way?" gives a good and concise idea how German influence in beekeeping in Jugoslavia is waning and how American ways and methods must take its place.

In the article "How We Keep Bees in America" Mr. Miklantshitch is explaining the diverse manipulations and implements, hives, etc., as they are practiced in the United States.

The time is not far off when America will entirely dominate Jugoslavish beekeeping — American methods, American implements, American ideas will prevail and the winner will be Jugoslavia.

And so may the little busy bee become the pioneer of introducing American capital, ingenuity, perseverance and sound methods in all other fields of economics and industries. This Commonwealth is surrounded by seven neighboring States, of which none at all feel over-friendly towards her. The strong and mighty hand of Uncle Sam would therefore be a firm bulwark against any political or economical extravaganza these neighbors might entertain towards it.

Ljubljana (Jugoslavia).

SEASON AND MANAGEMENT

Notes on Beekeeping Conditions in British Columbia

By F. Dundas Todd

IN the season of 1921 I put in my eleventh year as a bee inspector and I found it just as interesting, and in many ways as fruitful as any of the previous ten. From the first day to the last of these eleven years the predominant thought has been to develop a system of beekeeping suitable to our local conditions, which differ greatly from those east of the Rocky Mountains, and are similar to those of Washington and Oregon. My 11 note books are stored with observations as to weather, flowers, unusual conditions of bees, with details as to the possible causes, so far as could be attained by observation. One winter I spent two weeks tabulating all this material to find the common factors, and out of that fortnights' work I drew up a calendar of about two hundred words that so far has stood the test. But no one knew better than myself that it was incomplete, in one particular at least. For several years I wanted to thresh out the matter, but could not find the time, for I was ever on the move, seeing my own bees once a week. Certain kinds of work demand that a man shall be on hand for several consecutive days, or every second day, which in my case was impossible, so reluctantly the experiment was left over for a more suitable time, which in my case never came.

It was the problem of the two peaks, with the intervening dearth. In British Columbia we have practically a building-up period of four months from the advent of the first pollen to the start of our main honey flow. First pollen is carried in about the middle of March, the soft maples and wild berries yield our first flow in May, then comes the long dearth, with alsike and fireweed in July. Of course local conditions vary the dates somewhat. For instance, Victoria is at least three weeks, often more, ahead of the rest of the Province. First nectar from maples comes in about the 7th of April, forty miles further north it is nearer the end of the month, while in Vancouver it is later still. Around Victoria the main flow is found in pockets and is from snowberry bush or wild mustard, in June, but otherwise July is our main honey month.

Ordinarily our bees, if they have plenty of stores in the spring, get very strong in May, mostly, I am sorry to say, when the spring flow is over. The surplus from the flow is speedily spent in brood rearing, and then the slump begins just when our queens should be at the very height of their laying. If swarming has occurred conditions are no better.

Here, then, was a problem to solve, and the bee inspectors talked it over when they met, and all were pretty well agreed as to how the situation should be handled, but the problem was to find the time to thresh the matter out. We had a very virulent form of European foulbrood to handle, and we were attempting to edu-

Mr. M. Humek, first President of the newly-founded National League of Jugoslavish beekeepers.

cate every beekeeper, large and small (they were mostly small), but too many of them did not actually want to be educated, although they thought they did; what they really did want was the inspectors to do all the work for them, killing queens, destroying queen cells and introducing new queens. The inspectors did all this as a sort of individual demonstration, only to find that crossing bridges for

other people does not put these people on the other side of the stream, for they still have the bridge to cross and are just as reluctant as they ever were to make a move, perhaps more so. The larger beekeepers, at whose insistence the "nursing" system had been practiced, ultimately realized their mistake, and just as emphatically demanded its abolition.

Our work then, in 1921, was educational. The season on the Lower Fraser and on most parts of Vancouver Island was a rather poor one, but more of that anon, for out of it we learned something, interesting if true, and it seems to square with the facts. As a part of this educational campaign, the Lower Fraser inspectors got authority from their Department to inaugurate a series of fifteen demonstration apiaries to show what could be done in actual honey production. These were scattered over a region fifty miles long and a dozen miles wide so as to be fairly representative of the district. The apiaries ranged in strength from two to nearly a hundred colonies. In each yard two colonies were chosen by the owner as average colonies, not the worst, nor the best, but a fair average, and these were to be run as the inspectors said. All expense in these yards was to be borne by the beekeepers, and the honey crop was to belong to them. It was rather late, about the beginning of May, before the inspectors took hold, but so much more credit for the final results.

The first move was to house all the selected hives in outside cases, to protect them from the cold at night. The next, as the region was riddled by European foulbrood, where it had spread like a tornado, was to order Italian queens from a breeder. As fast as they arrived they were introduced and feeders clapped on where necessary, which was everywhere, as the spring flow was practically nothing on account of wet, cold weather. When the summer flow arrived, in July, the colonies were powerful, and in most yards the honey poured in. The average per colony in the fifteen yards so managed was 120 pounds, the lowest 100 pounds, the highest 213 pounds. About 60 pounds was left in each hive for the winter.

To my mind it was a splendid bit of work. The season, measured by ordinary standards, was a poor one, with me a mighty poor one, easily the worst I ever saw; from the beginning of May to the end of the season not enough nectar for steady brood raising, and not nearly enough in July for winter stores. Three of the demonstration yards on the Lower Fraser were as badly off as mine was. The average crop for the region round the other demonstration apiaries was about 10 pounds to the hive, so on the whole the fifteen demonstration apiaries had twelve times the crop secured by the average beekeeper. W. H. Turnbull and A. W. Finlay assuredly did fine work.

The underlying idea was this: not only should Italian stock be introduced to combat European foulbrood, which was present in practically every yard, but a young queen ought to replace the old one who had probably exhausted herself in bringing the colony to the first peak and needed at least a rest at the very time the beekeeper's needs demanded from her the utmost limit of her laying ability. We inspectors had come to be of opinion that it would probably pay big to requeen every hive at the end of the first peak in May, but had never really had the chance to make the experiment until the past season, and at the very least the results are exceedingly encouraging.

There is also a little corroborative evidence. Each of these gentlemen got from California two-pound packages of bees with a queen, just to see what they could do with them. They arrived at the end of the first week in May and were placed on one frame of brood and three combs, one of which had lots of honey and pollen; then a feeder for emergency use was put on. On the same day, in Mr. Turnbull's yard, a very large swarm came out, so here was a chance to compare a young queen's powers with those of an old one, not so very old, as Mr. Turnbull requeens often; so it was hived on a frame of brood, a frame of honey and pollen, and eight empty combs. It covered about eight combs, so was double the strength of a two-pound package. The treatment of the two colonies was identical so far as feeding was concerned, and the protection was alike. At the end of the honey flow the two-pound package gave a surplus of 60 pounds, with a like quantity of winter stores; the swarm got winter stores only. The vigorous young queen with a small support easily outdid the strong swarm with an exhausted queen. Assuredly it is only a single instance, not enough to build a theory upon, but we think it supports our present view of how to handle our local conditions.

At one of our fall agricultural exhibitions we learned something new from Professor Davidson, who is in charge of botany at our university. He gave us a most excellent paper on the honey plants of British Columbia, then, at its conclusion, Mr. Turnbull asked him if he could tell why there was so little nectar in the blossoms of the last season. To do so Professor Davidson gave us quite a little outline of the physiology of plant life, and assured us the question of crop or no crop was practically determined in April and the first half of May. (See page 153, April issue). In these months the plant is building its own body, and, if conditions are favorable, is also storing surplus food in the form of starch, which surplus, later in the season, will be drawn upon to build the reproductive organs. For this purpose it is first converted into sugar. When the organs are complete, the buds are forced open by the hydraulic pressure of the water in the earth, and any surplus sugar not needed for the making of the blossom is by this pressure forced out through the nectaries. No big surplus of starch stored in April and May means, therefore, no nectar in July.

His theory certainly squared with the facts last season. The first two weeks of April were lovely and I never saw my bees in better shape at the end of that month, in former years, than I found them in the first week of April, 1921. I moved them from the mainland to Vancouver Island so as to have them nearer home, having the previous summer found a hopeful location, and just as I put the last hive or two in place it started to rain, and the weather was cold and wet for three weeks; then came a week of night frosts. There was little nectar for the bees for the rest of the season. We had blossoms galore, the bees were busy, but nothing in the hives.

It is interesting though not exhilarating, to study my district in the light of Professor Davidson's theory. On Vancouver Island, I work a stretch about 170 miles long. In my mind it is in three sections, one 20 miles or so long, reaching from Victoria to the top of the mountains that form a barrier at the north, then about a hundred miles to where the high mountains again tower up, lastly about 50 miles where there are valleys lying between the mountain backbone and the sea. These have different seasonal developments on account of latitude and proximity to snow-clad mountains.

In the region around Victoria the bees go on the maples about the seventh of April, forty miles north about three weeks later, and, in a valley eighty miles still further north, they are about ten days more behind.

The big spring growth round Victoria had been made before our cold, wet weather set in, so the crop in that region was better than the average, which is usually low on account of the dry summer.

In the next stretch, where the developments are three weeks behind Victoria, the wave apparently caught the plants at the critical moment, so all that region had a failure in which I participated. I know of only three exceptions to the rule, three small apiaries with about ten colonies all told, on higher ground, where the season is fourteen days later than in the valley country. These did well. In the valley, a hundred miles north, where the season is very late, the wet and frost came too soon to do any damage, and the crop was the best in years, one strong colony laying in a surplus of over three hundred pounds. Farther north, but nearer the sea, the season is much like the second stretch and the result was the same, a blank.

On the lower mainland vegetation develops from the sea shore inland. In the first 20 miles the conditions correspond largely with those of the middle belt on Vancouver Island, so the result was much the same. Messrs. Finlay and Turnbull found that crop production began practically about twenty-five miles from the sea, and the farther inland, the bigger the crop, indicating fairly well the stage of plant development when the cold wet weather, followed by

the frost wave, struck.

One of our old-time beekeepers told me often that he preferred a cold wet spring, as his big crops came in these years, and I took his statement as a factfi but in my eleven years I never found my experience to square with his theory. I might have known better, for it is many long years since I learned to doubt the assertions of people who keep no records, but in a new field one is tempted to listen to the statements of old-timers.

British Columbia.

A NOVEL SELLING IDEA

Honey Via Milk Bottle Route

By A. E. Burdick

FOR several seasons past I have entertained the belief that a shorter and less expensive route could be established between the producer and the city consumer of honey by means of milk bottles.

The influencing factor in this belief was the exchange value of the bottle, which permitted the consumer to purchase honey without an investment in a container at each transaction. While the tendency is to put food articles in small packages, with lots of glitter, short in quantity and long in comparative price, I reasoned that the manifest economy of this plan would appeal to many.

My time being otherwise well occupied, I arranged with Mr. S. on a 50-50 basis. I was to finance it and Mr. S. was to do most of the work, and any visible profits were to be divided equally between us. For reasons of no particular interest to the reader, Seattle was selected for our experiment.

In October, 1921, we purchased an outfit consisting of a double jacketed tank for heating honey, a bottle filler such as is used by dairymen, and enough milk bottles to make a fairly good display in 100 grocery stores. Also we had printed a quantity of placards in two colors with the prices of half pints, pints and quarts in rather large type at the bottom. For caps to the bottles we purchased a kind that is so constructed that while they fit into the neck of the bottle, they also fit over the outside of the neck. There was no particular advantage in these caps except perhaps they added a little to the attractiveness of the bottled honey. We could stamp on them all facts required by the Pure Food Laws, and thereby eliminate the expense of labeling.

In order to introduce the business rapidly we planned to place a display of honey in every grocery store that looked right to us, and would accept the honey under our terms, for which purpose we had contracts printed. These contracts were very brief, simply stating that the merchant would display the honey and sell at a fixed price. We were to check up at intervals, collect for the honey sold, take up our empty bottles or their equivalent and renew his stock. Title to all unsold honey was in our name and we reserved the right to remove any or all honey at any time. The word "Contract" was not on these slips and we did not ask for the merchant's signature until the matter had been arranged verbally.

"Fools rush in where angels fear to tread," and for about three months the matter was uncomfortably warm. Most of the grocerymen took kindly to our plan; however, there were some with a large lot carried over and others had made prior arrangements for their supply, but on the whole our method was very favorably received by the grocerymen and we were signing them up at a reasonable pace. The milk dealers seemed indifferent; but here I will introduce a factor to which we had given but little or no previous thought: The wholesale grocerymen and the bottlers of honey.

There were three of these major luminaries and a number of lesser lights that took the view that they had vested rights that were being ignored. For brevity's sake and other reasons I will designate them as A, B and C.

A was a wholesale grocery that bottled its own honey; B and C were each engaged in selling bulk and bottled honey.

One day Mr. S. reported that one of A's men had been on his trail all day, appearing in nearly every store that he visited and the next day B was spoofing around in about the same way.

The next day I went out with Mr. S. to make some deliveries. I had gone into a store with some honey and was about ready to go out,when a stranger stepped up to me and in substance the following conversation took place:

He—"How do you get away with that milk bottle business?" I rejoined: "What is the matter with the milk bottle business?" He: "Don't you know that it is against the law to use a milk bottle for any other purpose than milk?" I replied: "Against the laws of what state?" He: "Against the laws of the State of Washington." I: "Are you a lawyer?" He: "I'm not a lawyer, but for a number of years I was connected with the dairy interests. Any dairyman can have his name or other mark on a milk bottle and can claim title and take possession of it at any place he may find it." I came back: "That's very interesting, but I do not believe you know what you are talking about; however, since you have so kindly mentioned it, I will look the matter up."

A few days later I learned that the statutes of the State of Washington contained no law such as was positively stated by the stranger. I then went through the Ordinances of the City of Seattle and found a lot of ordinances regulating the milk and dairy business, the enforcement of which was in the hands of the Commissioner of Public Safety. I next visited his office and, replying to my inquiry, he said simply. "We have no objection to the use of milk bottles for honey."

I learned from good authority that putting a name or other mark of identification on a milk bottle did not change accepted methods of jurisprudence. That when a milk man charged his groceryman with a bottle, title passed to the groceryman and in turn he could sell or otherwise dispose of it. All very simple and good horse sense. The ground was now cleared of this rubbish and we were ready to go ahead with our plowing.

Many grocerymen are controlled entirely by their wholesalers. They are in a chronic state of debt. A's man enters one of these stores. The merchant asks for an extension of time or further credit. A points to the honey and inquires: "Whose honey is that?" The merchant sees the point at once, and at our next visit says to us: "I'll not take any more honey today." We ask the reason and he explains that he does not have the nerve to collect for the bottles from the customer, and anyway it is too much trouble to keep check on the business.

None of this class will divulge the true reason. A debtor is only half free, ashamed to tell the truth: he is manacled to another's will. We lost a number of good stores in this way. In a few instances we were able to get back in, but all the time we were increasing the number of stores handling the milk bottle honey.

Our net returns were not large, but I believe the business will improve, especially if one is diligent and holds to his customers year in and year out.

We found after four months test that the contract plan has practically no defects, at least none that would not apply to the direct sales plan, and it has many advantages.

Friend S. is going ahead with a feeling of confidence, and if the plan succeeds it will be a great help to the honey producer. I have no sympathy or patience with the little apothecary's bottle containing 9 ounces net of pure honey on the groceryman's shelves at 35 cents. The groceryman complains that honey is a slow seller and this 9-ounce package is the big reason. We are producing too much honey to attempt its entire disposal as a cough medicine. We must sell it as a food in competition with other foods. Each one in his own place must preach its value and wholesomeness as a food, and we will succeed.

Washington.

CULLING BEES

Weeding out the Unprofitable Colonies

By J. H. Merrill, Apiarist, Kansas State Agricultural Experiment Station.

(Contribution No. 74, from the Entomological Laboratory, Kansas State Agricultural College. This paper embodies some of the results obtained in the prosecution of project No. 126 of the Agricultural Experiment Station.)

CULLING the non-profitable hens from a flock of poultry, or the inferior cows from a dairy herd, is widely practiced by experts in these lines. However, in beekeeping, it has been necessary to wait until the close of the honey season before it could be known which colonies of bees in an apiary were the best honey gatherers. Queen breeders wish to breed from those queens whose bees gather the most honey. One complete season always had to elapse before such colonies could be recognized and selected for breeding purposes. If it were possible to examine the colonies earlier in the spring and cull them as in poultry production or dairying, considerable time would be saved and the breeding queens could be used an extra year, as they would be available for this purpose during the first year of their lives. The results from the following experiment seem to indicate that we can cull our bees with as much certainty as we could cull our poultry, or dairy cattle.

It has long been known that some colonies in a beeyard exceed others in the amount of honey they store. As a remedy for this condition, it has been urged to have all the colonies strong before the honey flow begins and to have them as nearly the same strength as possible. Yet, even when this advice has been followed, bees of the same race, raised from queens of the same age and strain, differed in the amount of honey that they stored. In an attempt to learn why these facts exist, the following experiment is being conducted at this station:

During the summer of 1920, four colonies of bees, numbered 5, 6, 7 and 8, respectively, were selected to be used for this experiment. In 1921, the number of colonies used was increased to six and numbered 1, 2, 3, 4, 5 and 6. During both years the colonies selected were nearly equal in strength, the queens used were of the same age, and raised by the same breeder. Throughout both summers the same manipulations were made with each colony.

At the beginning of the summer the exact number of bees, the amount of honey in each hive, and the amount of brood were determined by a system of weighing. In July, 1921, a mid-season weighing was made before the main honey flow ended. In the fall of the year another weighing was made to ascertain the total amount of honey that had been stored in each colony during the season.

Collections were made daily of ten bees returning to each hive, and when possible a second collection was made during the day. These bees were then taken to the laboratory, where the tongue (glossa) of each was measured, the amount of nectar in its stomach was weighed to determine its carrying capacity, and then the weight of the bee, together with its empty honey stomach and tongue was determined. During 1920, bees filled with nectar returning from the field were collected, and the nectar was weighed. Since nectar from different plants varies in specific gravity, it was decided in 1921 to allow the bees to digest the nectar which they had brought in, and then feed them with a sweetened solution of standard strength. During the summer of 1920, 2,880 bees were examined and the results recorded. It was found that there was a distinct correlation between certain physical characters of the bee and the amount of honey stored. This is shown in the following table:

A Kansas outyard belonging to Frank Hill at Sabetha. Mr. Hill owns more bees than any other man in Kansas.

Table I.—Comparison of Some Physical Characters and the Total Amount of Honey Stored During 1920.

Hive Number	5	6	7	8
	4th	2nd	1st	3rd
No. of bees in spring	12,500	19,375	20,000	18,750
Length of tongue	4th	2nd	1st	3rd
Weight of bee	3rd	2nd	1st	4th
Carrying capacity	4th	1st	2nd	3rd
Total honey stored in pounds	61⅜	116⅜	74⅛	53⅜

Some of the significant facts brought out by this table are:

First, the bees which have the longest tongues, the largest bodies and the greatest carrying capacity are also the ones which form the strongest colonies in the spring. This fact will be emphasized when the results of 1921 are examined. It will be noticed that the colonies possessing the longest tongues, greatest bodies and

An attractive Kansas apiary at the home of Geo. E. Capwell, at Cottonwood Falls.

largest carrying capacity exceed in the total amount of honey stored.

Colony No. 6, which ranked second in number of bees in the spring, second in length of tongue, and second in weight of bee, ranked first in the total amount of honey stored. Colony No. 7 ranked first, although it was approximately equal to colony No. 6 in number of bees in the spring; was first in length of tongue, first in weight of bees, but was second in its carrying capacity and was second in the total amount of honey stored.

The following table shows the same results for 1921:

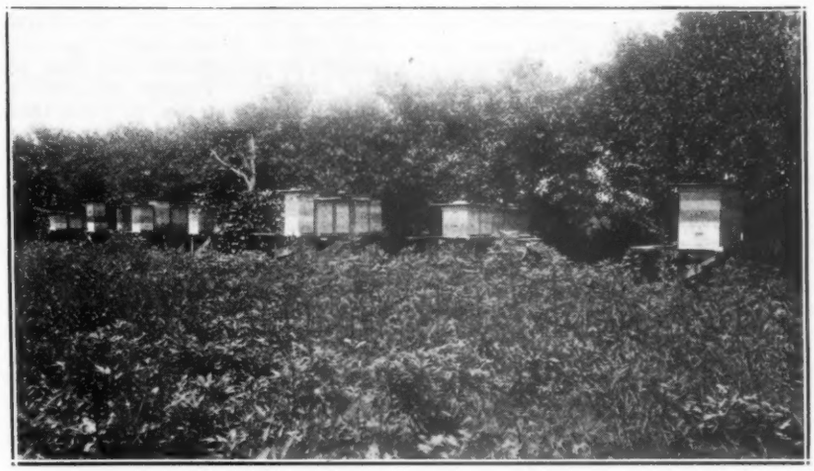
Table II.—Comparison of the Carrying Capacity and Storing Ability.

	1	2	3	4	5	6
	4th	6th	1st	2nd	3rd	5th
Total honey produced in pounds	56⅝	16½	119½	82½	68⅜	43
Carrying capacity in Mg.	4th 19.59	5th 18.67	1st 21.63	2nd 20.05	3rd 19.89	6th 18.64

Table III.—Comparison of Some Physical Characters, Amount of Honey Stored During 1921.

Hive Number					
1	2	3	4	5	6
No. bees in hive June 15th					
5th	3rd	1st	4th	2nd	6th
23,740	35,625	42 500	25,000	40,000	17,500
Honey stored between June 15 and July 15 in pounds					
3rd	5th	1st	4th	2nd	6th
62⅛	29⅛	85⅜	55⅜	79	24⅞
Average length of tongue in mm.					
6th	3rd	1st	4th	2nd	5th
3.57	3.62	3 86	3.61	3.84	3.59
Average weight of bee in mg.					
5th	3rd	1st	4th	2nd	6th
82,1	86.1	93.6	84.6	86.5	70.6
Carrying capacity in mg.					
4th	5th	1st	2nd	3rd	6th
19.59	18.67	21.63	20.05	19.89	18.64
Total honey produced in pounds					
4th	6th	1st	2nd	3rd	5th
56⅝	16½	119½	82½	68⅜	43

These hives were kept on platform scales throughout the season, and a record was made of the daily changes in weight, which indicated whether or not nectar was being brought into the hives. These records show that the main honey flow stopped on July 28, or 13 days after the mid-season weighing was made. Some very interesting facts were brought out by a study of the data, comparing the length of tongue, the weight of the bee, the number of bees which were in the hive on June 15, and the amount of honey stored during the heaviest part of the honey flow. Hive No. 3 was first in all of these respects; hive No. 5 was second and hive No. 4 was fourth. Hive No. 2, which was third in number of bees on June 15 and third in length of tongue and the weight of the individual bee, drops to fifth place in the carrying capacity and also to fifth place in amount of honey stored between June 15 and July 15, and was sixth in rank in the total amount of honey produced for the season. Colony No. 2 and colony No. 6 were practically equal in carrying capacity and ranked sixth and fifth, respectively, in the total amount of honey produced. Colony No. 1, which was fifth in the number of bees, sixth in the length of the tongue, and fifth in average weight, rose to fourth in carrying capactiy, and stored the third largest amount of honey between June 15 and July 15, but was fourth in the total honey produced, which rank corresponded with its carrying capacity. Colony No. 3 exceeded all others in all of the factors here considered, and stored by far the largest amount of honey during the season. Colony No. 4 was fourth in the number of bees, fourth in the amount of honey stored between June 15 and July 15, and fourth in the length of tongue, fourth in the weight of the bee, but rose to second rank in carrying capacity and total honey produced. Colony No. 5 was second in number of bees, second in honey stored between June 15 and July 15, second in length of tongue, almost equalling colony No. 3, which ranked first in this respect; was second in the weight of the bee, but had a slightly smaller carrying capacity than colony No. 4, which ranked second in carrying capacity and total honey produced, and colony No. 5 ranked third in both of these respects. Colony No. 6 ranked sixth in every feature except in the length of tongue and total honey produced. Its tongue length and carrying capacity were nearly equal to that of colony No. 2, which ranked fifth in total honey produced.



A sweet clover location belonging to Carl F. Buck, of Augusta, Kansas.

The above table shows a comparison of the total amount of honey stored in each hive and the average carrying capacity of the bees in those hives. The relative rank is indicated by the figures placed above the results. The colonies whose bees had the largest individual carrying capacity are the ones which stored the greatest amount of honey, and for the four highest there appears to be a direct correlation between the carrying capacity and the total amount of honey stored during the entire season. The results of the 1921 season confirm those obtained in 1920, since the colonies which ranked first, second, third and fourth in carrying capacity also ranked first, second, third and fourth in the amount of honey produced. In 1920, the colonies that ranked first and second in the individual carrying capacity, also ranked first and second in the total amount of honey stored.

As the season of 1921 was the second during which this experiment has been conducted, naturally more data were collected than during the first year. The following table summarizes some of the most striking results obtained during the second year of this work.

Winter scene at roof apiary in Topeka, Kansas, formerly owned by A. V. Small.

These results seemed to indicate that the bees which have the longest tongues, largest bodies and greatest carrying capacity exceed, in the total amount of honey stored, those possessing these factors in a lesser degree. While there seems to be a direct relation between the length of tongue, the size of the bee when the carrying capacity is either equal or about equal, and the total amount of honey stored, yet a study of colony No. 1 would indicate that if it were deficient in the size of tongue and the size of bee, this disadvantage would be offset by the advantage of a larger carrying capacity, because, as previously mentioned, colony No. 1 ranked sixth in the length of tongue and fifth in size of bee, but in its carrying capacity it very nearly equalled colony No. 5, which ranked third in carrying capacity, and on July 15 colony No. 1 ranked third in the amount of honey stored, and at the end of the season ranked fourth in total honey produced. This is again shown in a study of colony No. 4, which ranked fourth in length of tongue and weight of bee, but second in carrying capacity and total amount of honey stored.

During both 1920 and 1921, those colonies whose bees possessed the longest tongues and had the greatest size or carrying capacity, were also strongest in the number of bees. This may be due to the fact that the length of the bee's life depends upon how rapidly its energy is expended. If the bees possessing the longest tongues, the largest size and the greatest carrying capacities expend less energy to bring in nectar, this may account for the fact that the bees in these colonies have longer lives and consequently are found in greater numbers.

In 1921, over 3,000 bees were examined to determine the length of tongue, the individual carrying capacity, and the size of each bee. The data secured was arranged in frequency distributions and the co-efficient of variability was determined from these distributions. This represented the probable variability of the group expressed on the percentage basis. The co-efficient of variability in the size of the carrying capacity was larger than either of the other two characters. Consequently, in order to determine the number of individuals necessary to be examined to arrive at a definite conclusion, these figures will be based on the co-efficient of variability for the carrying capacity. If 10 per cent is used as the difference to be measured, then the number of individuals required would be 32. In order to further safeguard these measurements, it seems advisable to examine 40 bees from each colony, as it appears that this number would be sufficient to be fairly representative and to give data accurately sufficient to form a definite conclusion.

Summary

A study of the data obtained in this experiment both in 1920 and 1921 indicates, first, that there is a distinct correlation between the length of tongue, carrying capacity of the bee, and the amount of honey stored during the season. Second, that there is a distinct relation between the number of bees found in the colony in the spring and the size of the above named physical characters. Third, it is very strongly indicated that while it would be distinctly advantageous to a bee to excell in all three of its physical characters, yet if it is deficient in any of these characters, the disadvantage may be overcome if it possesses one of the other characters to a greater degree. Since the probable error for the co-efficient of variability of each of these physical characters has been computed, it will be necessary to examine 40 bees from any colony in order to determine which colony of bees in a beeyard should be the best producer. As this examination can be made early in the spring, it will enable queen breeders to save one year's time in selecting the colony which they are going to choose for the best producing quality.

LOCAL SELLING OF HONEY

Building up a Retail Trade to Local Customers

By A. G. Woodman

IN the face of more competition than ever before, our sales on honey in tin packages has far exceeded any previous season. Undoubtedly there are contributory reasons for this outside of our own personal efforts. Even at the present time our solicitors are securing a good business, with very little slackening of the demand. In former years the trade in honey was off color at this season of the year (April).

Our local newspapers issue, once a week, a farmers or suburbanite page of information pertaining to agriculture, horticulture, etc. We have also had some articles on beekeeping. We have been carrying an advertisement on this page, part of the time advertising honey and part of the time supplies. The expense is not great, on account of the once per week issue of this page. It being a classified page, we are inclined to think that this advertising is just as effective, or more so, as it would be if carried every day in the ordinary reading columns.

With the advertising, and perhaps other contributory reasons, like a shortage of can goods and of a fruit crop last year, it almost seems like all that is necessary is to go out and pick up the orders off the bushes.

One of our most successful solicitors was a hostler in a cartage barn at $20 per week, including Sunday, before he took this work. He had farmer experience, however, and the farmer viewpoint; many customers take him for a farmer and ask for butter and eggs. We speak of this because the dandy slick fellow doesn't seem to get the confidence of the people as well in selling this product. He has sold as high as 40 of the 5-lb. pails in a day. His average for full time will run at least 25 pails per day. We pay 5c per pound for selling and 2c per pound for delivering, a total of 7c per pound. Many times they make it a point to be at a factory exit when the men come out on their pay day. It is generally agreed that it is much easier to sell to the men than the women.

With the solicitors a retail price of $1 for amber and dark and $1.25 for the best quality white honey in 5-pound pails has been maintained. We also sell to the store trade, but the trouble with these people is that they cut prices. We have attempted to prevent this by charging the grocer 75c for the amber or dark and $1 for the white, while the cost to the solicitor is 65c and 90c per 5-pound pail. We find, even with this smaller margin to the grocer, that the "Cash and Carry," "Piggly Wiggly" and other cut-rate stores, will cut the retail price at least 10c per package. This causes us considerable trouble. The customer often calls on the phone and asks why they can buy our regular $1 package for 90c from some of these cut-rate stores, and not from us?

Now there is no question that one of the greatest reasons for the limited sale of honey is the lack of publicity and solicitation. In order to advertise and create this publicity in different ways and follow it up with an army of solicitors, there must be a liberal working margin for every one engaged, to keep them interested in the work. The only way to insure this is to maintain retail prices at not less than 25c per pound for the best white and 20c per pound for amber or dark, suitable for table purposes.

Beekeepers and solicitors in this immediate vicinity have maintained retail prices very well the past season. Very few have cut prices to any extent. We have learned of a few fool beekeepers who have sold best white honey that has retailed at 85c for 5-pound packages in some stores in the medium-size cities in the State. It is very fortunate, however, that very little of this has come to notice. The exasperating thing about it is that one of these beekeepers is fairly prominent, and quite active in Co-operative Farm Bureau and similar work, and intelligent ordinarily. He would have been better off to have sold his crop in a lump at prevailing jobbing prices of about 10c per pound in 60-pound tins, and saved himself a lot of work—much better for beekeepers generally.

There is no objection whatever if a beekeeper wants to be his own jobber. The only thing is to maintain retail prices, or the first thing we know the honey market will go on the rocks, there will be no working margin for anyone, and it will be impossible to advertise in different ways and create a demand. Without suf-

ficient reward, the army of solicitors that has grown up the past few seasons, will quit the business and be lost.

Any successful business is built up with sufficient working margin to create a demand and to maintain a selling force with ample reward to keep all interested in the work. Without this it is impossible to build a healthy business.

Few outside of those that have had business experience seem to realize that it costs as much to sell an article as it does to produce it. In other words, if honey is worth 10 to 12½c per pound in 60-pound tins in a jobbing way, in quantity lots, the retail price should be at least double, or not less than 25c per pound. This is necessary to care for the selling expense. Every beekeeper should figure accordingly in an effort to maintain retail prices. He should figure the producing end and the selling end as distinct lines. When he goes out to retail his honey, he should figure the cost at what he can get for honey in a lump lot at jobbing prices. On this he should figure all time put in on the work, advertising, if any, and all general expense. This end of the business should show him a profit, or he might better devote all his time to the producing end and turn over the selling end to some one else.

Everyone should work his own immediate territory to the limit and fill it up before seeking distant markets. Our plan here is to advertise in the local papers and to employ solicitors who are allotted certain territory. Retail prices must be maintained so as to allow all workers a liberal reward, otherwise they cannot be kept interested. If retail prices in the near future are cut, this will be impossible, and this selling organization will be lost.

Michigan.

SOME EXPERIENCE WITH BIG HIVES

By Amos Burhans

WITH the efforts of queen breeders in America and Europe all bent toward producing queens that will breed earlier and longer, with the additional efforts of the bee pasture specialists who are trying to make two blossoms bear nectar where but one bore before, and with the improved methods of beekeeping, the small hive seems to be on the run. Even the bee breeder who is working for comb honey admits that the bigger hives are getting more crop, require less handling, winter their colonies better and in general are the coming hives.

And to prove that the big hive is living up to what its users for many years have been saying about it, the manufacturers who are seeing the increasing demand for it are now setting it to the front of their catalogs.

I am submitting some photographs that may be interesting to the beekeeper who is thinking of making a change in his equipment. The one showing the two frames of brood on top of the hive, although grayer than it should be for succesful reproduction, plainly shows the greater brood rearing space of the large frame. And if you will note carefully you will see that the queen's egg-laying circle is much greater in diameter on the large frame than on the smaller one. The large frame conforms better to the queen's tendency in laying, whether the frame is a Jumbo with its inch and three-eighths spacing or the Modified Dadant with its spacing of an inch and a half, center to center of frames.

Invariably, with all conditions being equal, the larger frame will have the greater broodnest. And I well remember, when packing for winter the last fall, that the deeper frame had the greater amount of honey over the broodnest and that there were many more bees in the big hives, both of which facts are bound to help the larger hived colonies winter better. On February seventh we had a day warm enough to draw the bees out for a flight. The modified Dadant hived colony sent out the most bees. That is, there plainly showed to be more bees in them at the time than in even two 10-frame bodies, where other colonies were wintering and in which I know were big colonies when winter started.

The other photograph shows the comparative depth of the regular 10-frame standard hive and the Modified Dadant, as well as that of the frames. Francis Jager, the Minnesota wizard and beekeeping's great interrogator, hints that the day is not far off when the modified hive will even be too small to accommodate the ambitious and well-bred queen. It is certain that the hive big enough to hold forth opportunity to the queen, in the single brood chamber, takes less manipulation than the one composed of two bodies. With the modified hive 40 per cent larger than the standard 10-frame hive, just think of these advantages.

Ten of them are equal in brood-rearing ability to fourteen of the 10-frame hives; they provide 40 per cent more honey to the colony to winter on; they provide 40 per cent larger colonies, which means better wintering and earlier laying of the queen in spring and consequently a larger number of bees for the flow when it begins; and from actual experience I find that a big colony will gather more than 40 per cent more honey on the average.

Of course, it will require 40 per cent more strength to lift them, but as C. P. Dadant says, "Why lift them?" Mine are packed on their summer stands, two together. They do not require lifting. They winter well here and have for years wintered for others. For use in outyards, which must get the minimum of attention and the maximum of crop, they are proving a blessing.

Iowa.

Comparative size of Langstroth and Modified Dadant frames and hives.

THE WHY OF THE BIG HIVE

Reasons Why There is Less Swarming with the Big Hive and Why Less Manipulation is Necessary

By E. M. Cole

I BELIEVE that every activity of the bee is governed by instinct, which causes it to react to any change in its environment, and that to exactly the same change they react in exactly the same way within very narrow limits.

We usually say that bees swarm because of an instinct to increase, but I do not think that is the truth of the matter, and that "instinct to increase" applies more nearly to the mating of the queen.

I believe that swarming is purely a mechanical reaction to conditions within the hive, and only when these conditions are present comes the reaction known as swarming. Through a long course of evolution bees have come to this peculiar way of increasing.

It seems certain that if swarming were the result of an instinct to "increase and multiply," in the sense we use the expression, that the manipulation we use to bring about or prevent certain conditions in the hive, could have no effect whatever in preventing swarming.

The cause of swarming is an overcrowded state of the hive; such a congestion of stores, brood and bees that the point is reached at which bees react to it, and what might be termed an internal explosion takes place and the bees swarm.

Heat is probably not a direct cause of swarming, but indirectly must influence it greatly, for as the atmosphere warms up and the heat generated by the activities of the bees accumulates in the hive, each individual bee requires more space, thus greatly expanding the cluster, and in this manner indirectly does much to crowd the hive to the swarming point.

In order to prevent or control swarming, the beekeeper must usually resort to a great deal of expensive and time-consuming manipulation.

This manipulation is provided almost automatically by the Dadant hive. It provides room for such a large force of bees, ample room for stores, and for all the brood the most prolific queen can produce, so that a colony may run well up to or into the surplus flow before enough pressure can be produced in the hive to cause bees to react to it, and then swarming will rarely o cur.

In keeping down this pressure in the hive a large entrance and wide spacing is vital. The accumulation of heat from such a large body of brood and from the activities of such a large force of bees must be enormous, and only by wide spacing of frames and an ample entrance can the heat be expelled rapidly enough from the hive.

The Dadant hive calls for one manipulation to prevent swarming, one every beekeeper must perform under any system of management—give plenty of storage room **before it is needed.**

When bees have once reacted to the condition which causes swarming, it will usually require some drastic manipulation to settle them down at work again, and one of the chief benefits of the large hive will have been lost, that of dispensing with so much costly and sometimes unsuccessful manipulation, but surplus room **must** be provided **before it is needed.**

There is another condition often occurring in colonies in ordinary hives which is sometimes given as a cause of swarming: an unbalanced condition in the proportion of brood to young or nurse bees; young bees may emerge, become nurse bees and accumulate larval food faster than young brood is provided to consume it, and that to remedy this condition the bees swarm.

It is doubtful if this unbalanced condition is ever the direct cause of swarming, for if bees react to this condition and swarm, they might be expected to do so at any time this condition is present in the hive, but they do not do so, and its presence at swarming time must be merely incidental; but I believe an unbalanced condition is often an indirect cause of swarming, and that this unbalanced condition is not a preponderance of nurse bees, but of field bees over wax workers. It is usually assumed that in the production of extracted honey but little wax need be produced for comb building.

One or two combs are usually left out of the surplus boxes in extracted honey production, and in uncapping these combs the cell caps and a total of one-fourth to one-half inch or more of storage space is removed from each comb.

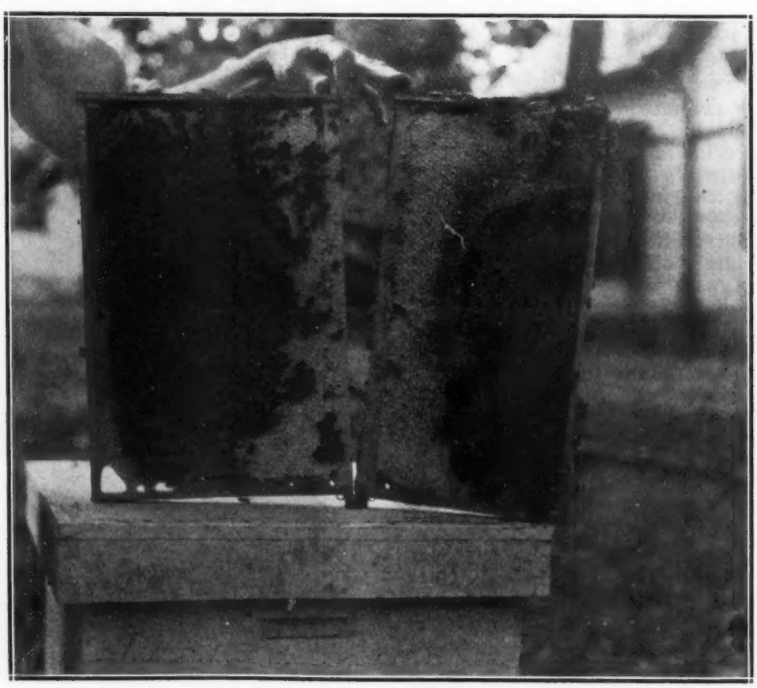
It must require a large force of bees to produce the wax to repair and rebuild these combs to full depth when the surplus combs are first given, and to repair them and build them out after each extracting, and if the colony has a large preponderance of field bees over comb builders during a honey flow, I believe a lack of storage space may help to bring on the congested condition which causes swarming.

I believe the Dadant hive will almost automatically prevent this unbalanced condition.

The reason lies in the division of labor in the hive; every activity of the bee must be a reaction to some change in its environment, but I have never seen it stated what change in environment causes the reactions which bring about this division of labor.

After the young bee emerges from the cell and the organs which elaborate the larval food begin to function the bee reacts to this condition and begins to supply the larva with food, and this I believe is the cause of one division of labor.

Later in life the activities of these organs are decreased, and the wax-



Another comparison of the Langstroth and Modified Dadant frames.

producing glands develop and the bee reacts to this condition and becomes a wax worker and comb builder, and this accounts for a second division of labor in the hive, and when the activity of the wax glands begins to subside the bee becomes a fielder.

I will say that I believe the elaboration of larval food and secretion of wax is almost, if not entirely, involuntary in the young bee and that while the divisions of labor are somewhat flexible, they are not enough so to equalize any seriously unbalanced condition of the colony.

Probably the highest success, especially in comb honey production, will be had by bringing a colony up to and through the honey harvest, well balanced as to wax secreting and nectar gathering bees, and when this can be done I firmly believe that the bees will secrete wax and build comb fast enough to provide storage for all the nectar that colony will gather and store.

Now let us go back a few weeks to the time when this colony in a small or ordinary-sized hive was breeding up for the harvest. The hive becomes pretty well crowded with brood, pollen and honey, and the queen is more and more restricted in egg-laying, in fact for a few days there may be an almost entire lack of cells for the use of the queen, and even if conditions are such that no swarm is cast, and the working force is held together, looking forward 21 days it will be seen that at that date there will be a sudden drop in the emergence of young bees. This is immediately reflected in a reduction in the number of nurse bees, a few days later this drop in numbers is passed on to the wax producers and comb builders. As the force of field bees remains for some days at or near normal and continues to bring in the usual amount of nectar, while the force of comb builders may drop to half or less of the normal number, it is plain that the colony may quickly become so short of storage room that they may soon be crowded to the swarming point, not by an undue proportion of nurse bees but by an undue proportion of field bees.

It is evident that this drop in numbers is passed on next to the field force, causing a falling off in the daily harvest from the field. By this time the daily emergence of brood may be back at full tide again causing a rapid gain in young bees, both nurse bees and comb builders, just when there is a falling off in field bees, thus giving a large preponderance of young or nurse bees, and it seems clear to me that this unbalanced condition would be reflected, not in a desire to swarm, but simply in a loss in surplus honey.

Let us return to our question: How does the big hive, almost automatically,prevent this unbalanced condition in a colony? The large brood chamber, with its deep combs, allows the brood nest to be built in a natural shape, and to contain all the cells the best of queens can fill with brood, together with room for ample stores to feed it.

She may begin at the center and proceed outward with her enlarging circle of brood to the limit of her powers, and as the central cells are emptied of brood, may begin again and follow out the same circle of laying, and that continuously.

Iowa.

THE HUBER LETTERS

Metamorphosis of the Bees up to Their Perfect Condition—The Laying of Eggs

(Continued from June)

June, 1829.

My Dear Eliza:

Let us come to your questions. This form of conversation suits me as it suits you; I will not even change the order in which they have presented themselves to your mind.

You wish to see some eggs and our dear Madeline shares your desire. That which you saw in your first observation was not eggs, but young larvæ which had just hatched from them, and the queen of the hive had begun her laying 3 days before their appearance under the shape of grubs, for the grub or the larva of the bee passes 3 days in the shape of an egg. To make sure of it, I removed eggs from my young queens at the moment when they had been laid in the proper cells; those cells cut out of the combs, were put inside of small screened boxes in the center of their own hive, in order to learn: 1, whether the larvæ of bees needed the care of the workers in their first state; 2, whether it was sufficient, for their hatching, that they be exposed to the heat which they incite about them and which raises the temperature of the hive to the 27th, 28th and almost 29th degree of the Reaumur thermometer (93 to 97 degrees F.) A glance upon this box, daily, displayed them to us first as small, white, oblong bodies, larger at one end than at the other and about one line in length, the apparently milky fluid which filled them seemed homogeneous and had no organism.

(Note: On the subject of the eggs and larvæ of bees, the most modern and thorough work is probably "The Embryology of the Honey Bee, by James Allen Nelson, Ph. D., Princeton University Press, 1915. The student is referred to this.—Translator.)

On the second day, the appearance was different. By exposing the box to a strong light, we saw, through the transparent membrane which served as the shell of the egg, some very thin and very distinct filaments which reminded us first of the tracheæ—which are the respiratory organs of worms—or of muscles, which are the organs of motion; the enveloping membrane was still unaltered at that time. The following day, or third day, the twelve rings which form the body of the larvæ were visible, but still through the environing membrane. Continuing our observations, we noticed very marked motions within those eggs: they curved and straightened alternately, slowly at first, more quickly later. At the end of a few minutes, the membrane of the egg was torn at its large end; the head of the worm appeared then. The continuation of the same motions soon split the membrane to pieces from the back to the tail; its fall permitted us to see the naked worm, which, probably tired by its own efforts, sunk down and appeared to us in the slightly curved shape which you noticed.

We conclude from all this that: 1, the queenbee is oviparous like our hens, that is to say her young are not alive when she brings them forth; 2, neither the queen nor the bees give them any care as long as they are in the shape of eggs. The membrane which envelops them would not permit the workers to reach them for feeding them or to care for them, any more than the shell of the egg permits the hen to do it; so the necessary cares are reduced to incubation of the young during the first part of their existence.

Laying of the Queen

I have just stated to you that the laying queen must place her eggs properly in the cells prepared by the workers; you will soon see that they build cells of different kinds, large and small. The large ones serve as cradles for the drones, the small ones for the workers. They have two principal parts, the tube and the bottom; the tubes are composed of six sides and the bottoms of three only. The walls are trapezia, that is to say geometrical figures, of which two sides are parallel and the other two are not. The ensemble of these pieces constitutes hexagons. The bottoms are made of three pieces in lozenges or rhombs, which when assembled give them the form of a depressed pyramid.

I will mention the royal cells at the proper time; let us return to the queen making haste to lay. We see her walking about the combs, whether they are entirely composed of drone cells or of common worker cells. She looks into their apertures, that is to say she dips her antennæ into their tubes and even sinks in her head, which she withdraws only after having examined the cell, or, if you please, after having "felt" it in the inside, as if to make sure that it is clean and fit to receive the egg which she proposes to deposit in it. She then turns about and inserts her abdomen into the cell that she has just examined. Believe my statement, or better still, that of the great Reaumur, however incredible what I am about to relate. Whatever be the diameter of the cell in which she has laid under your eyes, you will always see a drone hatch from a large cell and a worker from a small one. Is the queen then endowed with a faculty which has not been granted to other females, that of knowing the sex of the being which she is about to produce, and never to make a mis-

take, for it is not by mistake that she behaves differently in certain circumstances?

Care of the Larvæ

If at that time the young larvæ have received no care, either from the mother or from that legion of nurses with which they are surrounded, everything changes at the time of their actual hatching; the larvæ, from then on, are the object of constant solicitude on the part of the workers. It was necessary to make sure of this. Burnens would tell you that he never found a minute when the larvæ were neglected. The body of the workers, or rather their corslet, fills the cell so well that it is impossible to see what the workers are doing in it, who keep their head and and a large part of their body sunk within it and who, if other cares are required of them, are at once replaced by their companions. To see what they have done, disturb them by pushing them aside lightly with the end of a feather or by blowing on them. You will then see the little larva coiled on the bottom of the cell; its body, slightly curved, will have its concavity turned the same way.

If the cell in question is in a good light, you will see something shine at its bottom which resembles jelly, or rather pap; I will retain this word which it deserves as the first food of infancy among bees as well as among ourselves. You might wish to taste it; a hair pencil will help you to take a bit of it. If you rob very young larvæ of their breakfast, you will find their pap rather unpleasant and without any distinct flavor. By repeating this experience the following days, as Reaumur did before we did, you will find that it becomes better every day and that on the fifth day it has acquired all the perfection of which it is susceptible. It is precisely then that the workers close the cells with a cover of wax and that the larvæ begin to weave the silk web which is to line them. By looking still closer, it will appear to you that this pap has been placed exactly before the mouth of the young larva; you will surmise that it is for the purpose of attracting it. As it has neither feet nor legs, it may come only by stretching its rings; the first one, near the head, attracted by its odor, comes first, the second follows this motion, etc.

The larva of the worker has thus spent the first three days of its life in the egg state, avoiding our eyes; I have told you what we could ascertain with the help of the magnifying glass.

The five days following, the cell being open, we might have seen it distinctly were it not for the interposition of the nurse's body which watched its actions and supplied its wants, which we could ascertain only by pushing her aside.

Spinning the Cocoon

You now know about the first eight days of its life. Everything will change on the ninth, it does not need to be fed any longer, it is time to wean it; the nurse may leave it and shut it up in its cell. Will it remain inactive? You do not think it; another idea has seized it, pardon this expression for want of another; it is the desire of sheltering its body against any friction which might be noxious, against even the air which might too quickly hasten the evaporation which must be imperceptible. How will it succeed in this? Does it possess a spinneret as does the larva of the silk worm? Does it know how to spin? I often found silk in shells that had been inhabited by some flies; in order to ascertain that the larvæ of bees use the same expedient as so many other insects, I procured glass tubes with the imperfect shape of the bee's cell, but of about exact dimensions. Burnens removed from their cells larvæ nine or ten days old and enclosed them within these glass cells. This experience succeeded; the larvæ spinned cocoons; we were able to see their maneuvers until they were surrounded with a silky tapestry and disappeared from our sight. (It appears that this work occupies them for 36 hours, at least-. Three hours afterwards they were metamorphosed into nymphs and spent seven and one-half days in this shape.

The larvæ of workers reach their last condition, that of winged insects, only on the twentieth day of their life, from the instant when the egg from which they come was laid.

Continued in August)

LABELING WITH COMMERCIAL PASTE

By E. G. LeStourgeon

In this day as much attention is given to the container as to the contained. The size and style of the container and the attenlant label on honey packages are subjects of importance to the beekepers. The more attractive the label and the container the greater the sales. This is especially true in the larger cities. If the honey producer wishes to sell his wares he must have them attractively housed and labeled or they will not sell, no matter what the quality of the honey.

The beekeeper is fortunate in having at his hand a large variety of containers and labels to select from. Cost is the only limit, as any manufacturer or printer is ready to furnish special designs.

The beekeeper may buy the most artistic container and a beautiful label, but if the label is not put on correctly the result is an offense to the eye and a loss of sale. Small as it may seem, one of the greatest factors in properly labeling honey containers is the proper use of paste. Home-made boiled flour paste will fasten labels to either tin or glass if it is spread very thinly over the label and the surface of the container is clean. Home-made paste has the disadvantages that it sours quickly and dries up rapidly. Small lots of it are hard to make, and as few beekeepers use much paste at a time, it is much more economical to buy the commercial liquid pastes. This form of adhesive can be purchased in wide-mouthed bottles ranging in size from an ounce to ten pounds. These pastes are so prepared that they will neither sour nor dry in the bottle.

The secret of making your container attractive lies in properly affixing the label. The container should be wiped dry with a cloth. The label, which has been very thinly covered with paste, placed in position. The center of the label should be pressed firmly first and then rubbed toward the ends. All air bubbles should be rubbed from under the paper. The edges of the label should be true with the lines of the container. All excess paste should be removed so the container will dry clean. In all cases the paste must be spread very thinly.

If the container is dirty or too much paste is used, the label will not stick, or will "pop off" in drying. All labels put on carelessly or coming off in shipment mean loss in per cent of sales. The following is a safe and economical method of applying the paste to the labels and insures a perfect "stick": Get a smooth piece of board 6 inches by 18 inches. Have the clean containers and labels ready. Remove the lid of the paste bottle. Place the board on top of the bottle. Invert the whole and place on the table where the labeling is to be done. Slide the bottle back and forth once or twice along the board. This leaves a thin layer of paste evenly over the surface of the board. Now take the label and draw it evenly across the board. This gives the label an even

Putting on labels.

coating that is just the right thickness. As the paste is used supply more by moving the bottle back and forth. When finished turn the bottle and board right side up, remove the board and put the cover in place. You have lost no paste, have no brushes to wash and have what is usually a sticky job done in a very short time, without any mess to clean up. The same paste board can be used over and over again.

Sometimes when cans are somewhat bruised or have oil adhering to the surface, it is necessary to use the following: Obtain from your druggist or paint dealer a thin solution of shellac. Paint the surface of the can with this liquid. After it is dry apply the label with a thin spreading of paste.

The success of your sales depends largely on the attractiveness of the labeling. Take your time and see that the labels are in the right place. Be sure the container is clean when it leaves your hands. Insure yourself that the label will stay by sticking it to the container with a very thin, even coat of commercial paste. See that all air bubbles are rolled from under the paper.

Texas.

CONCERNING MITES

By H. E. Ewing,

Bureau of Entomology, U. S. Department of Agriculture.

In recent numbers of the American Bee Journal several contributions on mites have appeared which have had a special interest to me, and I am sure have been of interest and profit to beekeepers generally. The translation of the article by Von Buttel Reepen, from the Archiv fur Bienenkunde, in the February number of the Journal, and the discussion that this article has brought out may prove to be very illuminating.

The figure which is published in this month's issue of the Journal taken from L'Apiculteur of February, 1866, and representing Duchemin's "Acarus de l'abeille" most certainly does not represent the **Acarapis woodi** (Rennie) in any of its stages. This figure does represent, however, a nymph of a species of **Trichotarsus**, and it is probable that the adults and larvæ of Duchemin's acarus are parasitic on the honeybee, possibly even fatally so.

Mites of the genus **Arichotarsus** are asociated with bees but have not been sufficiently studied. I have received specimens of these mites in the nymphal stage, and specimens representing all stages are in the United States National Museum. We have examples of **Trichotarsus xylocopæ** Donn. taken in California, and other examples of **Trichotarsus** taken from our native long-tongued bees. According to Banks "they probably do not feed on the bees." Pertinent to the question of the food habits of **Trichotarsus** species I would like to state some of my observations on a species (of the genus **Trichotarsus**?) which occurs on our native wasps of the genus **Odynerus**.. My attention was called to this species by J. C. Bridwell, of the Bureau of Entomology, and through him the writer has obtained an abundance of material collected in nature. Up to the present I have succeeded in rearing this wasp species through three of its stages on the host larvæ and pupæ. It is a true parasite in every sense of the word as far as the larval, first nymphal and adult stages are concerned. Individuals of these stages pierce the body wall of either the wasp larva or pupa, as the case may be, and suck the juices from the same. This mite species has a most remarkable instinctive adaptation to its complicated symbolic relationship with the solitary wasps it parasitizes. In this migratory nymphal stage (the stage shown in Duchemin's figure of his "Acarus de l'abeille") the mite does not feed at all and is entirely concealed in a fold of the body wall (mite pocket) between the first and second abdominal segments.

Banks states that **Trichotarsus osmiæ** Dufour has been recorded from this country. I have never seen this species, which is said to be common in Europe. Could it have been introduced on importations of honeybees?

Under the title of **"Tarsonemus Versus Acarapis"** there occurs in the last number (for May) of the American Bee Journal a discussion of the appropriateness of the two names. Undoubtedly **Acarapis** is "more proper, as stated; but in "systematics" appropriateness cannot be considered, at least according to the rules of nomenclature, and the question either must be settled or left unsettled on other grounds, to be determined largely by the mite specialists themselves. Personally, I hold that Hirst's genus **Acarapis** is good, and this is the generic name I am using for the tarsonemid mite of the honeybee.

The contribution of Mr. E. Giraud, of France, on Trombidium, also published in the last number of the Journal, page 203, brings up the old question of the food habits of the larvæ of the Trombidiidæ. C. V. Riley, as well as many other entomologists, believed, as does Giraud, that these larvæ, known in this country as chiggers, feed upon plant juices. Experiments and observations made in the vicinity of Washington have failed to substantiate this older view. The question of the food and the other habits of chiggers is discussed at some length in Bulletin No. 986 of the U. S. Department of Agriculture. The larvæ, or chiggers, as we call them, of most, if not all, of the species of Trombidiidæ are nominally parasitic animals. Some of them are parasitic on invertebrates and some of them on vertebrates. The writer has attempted to rear our common chigger from man, but was unsuccessful, although the larva engorged and dropped after repletion in the manner of an engorged tick.

District of Columbia.

Texas Peach Crop Much Less Than Last Year

Austin, Texas—J. C. Stephens, Inspector of Orchards and Nurseries for the State of Texas, recently returned from an inspection of the east Texas peach belt, and he places the prospective production for this year at not more than 10 per cent compared with last year's crop. The freezes in March, he says, got most of the Elbertas, but there will be a half crop of early peaches, such as Victors and Arp Beauties. Recent heavy rains prevented proper pollination and later downpours caused much young fruit to drop. Plums apparently were not injured by the freeze, but the continuous rains prevented pollination and caused 40 to 50 per cent injury to this crop. Some very early peaches may be seen on the markets of Texas next week.—The Packer.

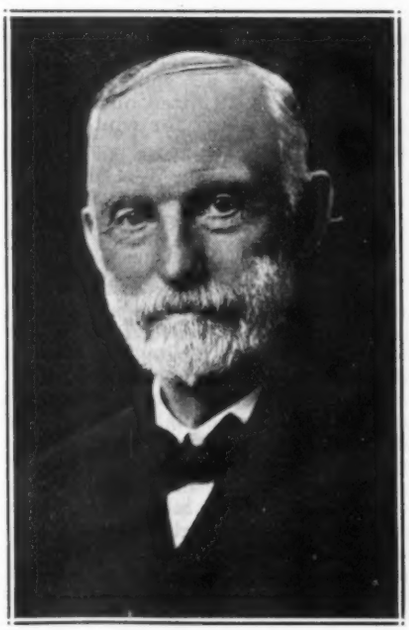
BEEKEEPERS BY THE WAY

One of the Old Guard

But few who were active in the beekeeping field in the days when Langstroth and Quinby were at the height of their popularity remain. Within the recent past, Doctor Miller, Doctor Bohrer, M. M. Baldridge and others have passed on.

Conspicuous among the members of the "old guard" still remaining is A. I. Root, founder of the well-known supply house. Although Mr. Root spent but a few years of his life in active beekeeping, he worked to great advantage during that period and made a lasting impression upon the development of the industry.

Few men find so many interesting things in life as A. I. Root, and it is, perhaps, due in part to the great variety of interests which he cultivates that he has lived to enjoy a busy old age. Electric windmills, potatoes, flying machines and dasheens alike seem to hold his attention. Probably there is not one among our readers but is familiar with his name and knows something of the man.



One of the last of the old guard.

WHY USE TELESCOPE COVERS?

By L. H. Cobb

I can see no real good reason why telescope covers should not be used in preference to other kinds, and I can see several good reasons why they serve better. I prefer them both summer and winter, and I have used both kinds in the same yard at the same time. They have saved me a lot of extra trouble shading hives in summer and protecting hives in winter.

With the regular hive using the common cover or even the double gable cover that used to be sold, I found that shade was positively necessary during the heated period, no matter if abundant entrance room was provided. With telescope covers made two inches larger each way than the hive I have never found it necessary to do more shading, though I try to have all hives where the midday sun is broken by some tree branches if I can. I do not like to have hives too much under trees, as it seems to me they are not so active.

I lift the cover and place a brick or block of wood at each end on the super cover and replace the telescope cover making an air space all around the hive under the cover. A row of ventilating holes on each side near the top lets the warmed air out of the cover and keeps up circulation enough to prevent the hive being overheated even if the sun shines directly on the cover.

For wintering I find the telescope cover just about as valuable as a packing case if the work is well done —at least we have kept many colonies safely through severe winters with them, and without more than ordinary loss. I take a big bundle of daily newspapers and some tacks. I spread layer after layer of papers crossed and recrossed until the hive is thoroughly insulated, tacking the papers as I put them on, and finally I put the telescope cover down over them. A strip of wood is cut to fit all around outside the bottom board and up against the edge of the telescope cover, and is nailed in place, thus sealing the air space comparatively. This is all fitted on after the hive has been ready for winter packing, of course.

Kansas.

GRANULATION OF HONEY

By A. C. Ames

I have noticed your editorials on teaching the public in regard to the granulation of honey. This is important, as many people conclude that honey is not pure when it granulates. For several years I have been pasting the attached label on the lids of the pails I have packed, or on any other containers that I have sold to a consumer. If every beekeeper would use a similar label it would go a long way toward giving the public proper information. Of course, I use the regular label on the side of the pail, also.

I do not offer this label as a model, but simply to convey the idea. If the bee journals would urge this, many beekeepers would do it.

I am also enclosing a part of a cereal box. It will explain itself. Most all cereals are better when sweetened with honey. If the cereal manufacturers could be made to understand this they would do just what this company is doing. It seems to me that this is a job for the League.

Weston, Ohio.

The above letter was accompanied with a label, of which we quote a part:

READ THIS

Pure Extracted Honey will always granulate or candy. The granulation of honey is almost certain proof of its purity. This Honey will granulate. Many persons prefer to use it in its granulated state. TO RETURN IT TO A LIQUID CONDITION FOLLOW DIRECTIONS ON THE LABEL.

Try Honey for sweetening breakfast cereals and fruits. It is particularly fine when used with grape fruit or oranges.

Honey was the first concentrated sweet known to mankind and is still the best.

(On the label of the Parched Wheat Company is the following statement:

PARCHED WHEAT, MILK, SUGAR, or better still, EXTRACTED HONEY—perfect nutrition for persons of all ages.—Editor.)

PRACTICAL PLANS FOR HONEY SELLING

By John T. Bartlett

There is a tip for some of the energetic honey producers in an experience which has just come to the writer from a friend with one of the large drug store chains, Liggett's. At a Germantown, Pa., store of this chain one of the medicine department clerks got the idea that a honey window display would go well.

He talked it over with the window trimmer, with the result that a special honey window was put in.

The drug store isn't the place where the public usually buys its honey. Honey is usually bought at the grocery store. But this drug store display was so appealing that by the sixth evening the store was selling right out of the windows, its stock exhausted. In the week this store, at 1210 Market street, sold 120 2-lb. glasses, 144 14-oz. glasses, and 144 8-oz. glasses, for a total of $186.96.

The story of the window display and sale was told in the house organ of the Liggett chain, going to all of the hundreds of stores, and it is very likely that, reading of it, other Liggett stores put on honey windows.

In this incident, there is a lot of encouragement to the producer who will exert himself to find outlets for his honey. Just because the honey was attractively displayed, in a good retail location, it is certain that scores of Germantown people bought honey who otherwise would not.

Undoubtedly in practically any community, the honey producer who will make arrangements with a local drug or other store for a honey window will see a lot of his product go into consumption to people who otherwise would not buy it. It should be a simple matter to arrange for such displays. The apiarist knows local druggists, and a consignment proposition can readily be agreed on —the producer supplying all the necessary stock for the window, and stock to sell, and the understanding being that the druggist shall pay only for what he sells. If the beekeeper has an attractive label for his bottled honey, so much the better. In any event, a card in the window should advertise the local origin of the product. This will make the druggist a "different" window display, and a profitable one.

Honey is a farm product which lends itself to merchandizing stunts. That is why its mail order sale is so great. And speaking of mail order sale, some community of beekeepers ought to get together and persuade their bank to do for them some such thing as the Welden National Bank, of St. Albans, Vt., is doing this year for maple syrup producers. The Welden bank is using the most widely circulating popular weekly in the country to advertise "Bankers' Bond" maple sugar and syrup. It is stated that the syrup and sugar for sale are sold for St. Albans district farmers, whom the bank represents. The bank offers samples of syrup, 6 ounces, at 25c, and of sugar 12 ounces, at 50c, postpaid.

The possibilities in a plan like this apply to honey. We may yet see an enterprising bank attempt such sale of honey for customers.

Even in rather trying market years, as the last one has been, enterprising ones manage to find ways to sell quantities of honey to advantage. I was told not long ago of a Boulder County, Colorado, man who took an auto load of honey into North Park, in the Rockies, last fall. At the time, Boulder County beekeepers were getting around 8 cents of local buyers. This man who went into North Park sold out his load for an average of 18c a pound. He had lived at one time in North Park, knew the people there, and also knew that it was usually a neglected market for honey.

Enterprise and originality are two of the most important elements in all merchandising effort. In selling his honey, the beekeeper able to scratch his head effectively, and pull forth a fresh selling idea, will usually get a better price for his product than the other fellow. That is only in accord with the economics of commerce.

Colorado.

GRADING THE QUEENS

By D. N. Howell

The grading of queens requires study, and the breeder should not be careless about the kind of queen he ships to his customer.

I will suppose that the order to fill is for one dozen untested, and I go to

the breeding yard to get these queens for shipment.

The first nucleus I come to shows, by the date placed when the last cell was given, that the young queen has been laying about ten days; on opening this nucleus I find that there are two little patches of brood about the size of a dollar, on two combs.

Is this a good queen, and should I ship her as a queen that will give my customer service and satisfaction? I do not think so.

I pass on to the next box and there find a queen that, within the five days she has been laying, has filled nearly one whole comb with eggs and brood and some on another; this queen I ship, feeling sure that I am treating the customer right.

And as I pass down the yard, securing one here and one there, I come to a box whose queen should have been laying nearly thirty days, as shown by the dates, but I find very few young bees, and I notice that some of the brood is capped rather higher than the rest; now, what have I here?

If this is not yet a drone layer, she would more than likely prove to be one; so I would be doing wrong to send this queen to one of my customers.

If I have, along with this, an order for some select untested queens, what shall I send? I do not think the breeder can tell what a queen will do before she has been laying at least ten days. Right here is where the breeder should look very closely,and observe how much brood there is, which should be well above the average. The brood should have a smooth appearance, be placed well together and not patchy; when the nucleus has plenty of honey and the bees should be good Italians, for I do not think that hybrids or blacks can raise the best queens.

Is this queen of good size, well proportioned, of good color, and does she act quietly when the combs are handled? If she comes up to these points my customer will be pleased.

Now if I have an order for tested queens, what shall I send?

All beekeepers know that tested queens must have been laying long enough for their bees to have emerged and proved either pure Italians or hybrids, but is this enough? After seeing that the bees are pure, and making sure that the queen has been laying more than 21 days, I must see whether the brood is plentiful, the bees quiet on the combs;whether the queen is well formed, of good color, and quiet when the combs are handled.

By carrying out these observations carefully, one feels better satisfied that the customer will get what he has paid for and will be pleased.

There is no breeding yard that can produce all perfect queens, so the breeder should cull out the poor ones and get rid of them, thus grading his output to better queens and better stock.

Georgia.

LEGENDS ABOUT BEES

Stories That Have Been Handed Down from Ancient Times Concerning the Honey-Making Insects.

By Wm. R. Reinicke

Concerning the piety of bees, we find the following legends:

"A certain simple woman having some stalls of bees which yielded not unto her desired profit, but did consume and die of the murraine; made her mone to another woman more simple than hir selfe: who gave her council to get a consecrated host or round Godamighty and put it among them. According to whose advise she went to the priest to receive the host, which, when she had done, she kept it in her mouth, and being come home again, she took it out and put it into one of the hives. Whereupon the murraine ceased, and the honey abounded. The woman, therefore, lifting up the hive at the due time to take out the honie, saw there (most strange to be seen) a chapel built by the bees, with an altar in it, the wals adorned by marvelous skil of architecture with windowes conveniently set in their places; also a dore and a steeple with bels. And the host being laid upon the altar, the bees making a sweet noise flew round it."—(Butler.)

Mr. Hawker's legend is to this effect: A Cornish woman one summer, finding that her bees refused to leave their "cloistered home" and "had ceased to play around the cottage flowers," concealed a portion of the Holy Eucharist which she obtained at church:

She bore it to her distant home,
  She laid it by the hive
To lure the wanderers forth to roam,
  So that her store might thrive.
'Twas a wild wish, a thought unblest,
Some evil legend of the west.

But lo! at morning-tide a sign
  For wondering eyes to trace;
They found above that Bread a shrine,
  Reared by the harmless race!
They brought their walls from bud and flower;
They built bright roof and beamy tower!

Was it a dream? or did they hear
  Float from those golden cells
A sound as of a psaltry near,
  Or soft and silvery bells?
A low, sweet psalm, that grieved within
In mournful memory of the sin!

The following passage from Howell's Parley of Beasts, furnishes a similar legend of the piety of bees. Bee speaks:

"Know, sir, that we have also a religion, as well as you, and so exact a government among us here; our hummings you speak of are so many hymns to the Great God of Nature; and there is a miraculous example in Caesarius Cisterniensis, of some of the Holy Eucharist being left fall in a meadow by a priest, as he was returning from visiting a sick body; a swarm of bees hard by took it up, and in a solemn kind of procession carried it to their hive, and there erected an altar of the purest wax for it, where it was found in that form and untouched."

Butler, quoting Thomas Bozius, tells us the following:

"Certain theeves (thieves) having stolen the silver boxe wherein the wafer-Gods vse to lie, and finding one of them there being loathe, belike, that he should lie abroad all night, did not cast him away, but laid him under a hive; whom the Bees acknowledging advanced to a high roome in the hive, and there insteade of his silver boxe made him another of the whitest wax: and when they had so done, in worshippe of him, and set howres they sang most sweetly beyond all measure about it; yea the owner of them took them at it at midnight with a light and al. Wherewith the bishop being made acquainted, came thither with many others and lifting up the hive he saw there neere the top a most fine boxe, wherein the host was laid, and the quires of Bees singing about it, and keeping watch in the night, as monkes do in their cloisters. The bishop therefore ,taking the host, carried it with the greater honor into the church: whether many resorting were cured of innumerable diseases."

Another legend from the School of the Eucharist, is as follows:

"A peasant swayed by a covetous mind, being communicated on Easter Day, received the host in his mouth, and afterwards laid it among his bees, believing that all the bees in the neighborhood would come thither to work their wax and honey. This covetous and impious wretch was not wholly disappointed of his hopes, for all his neighbors' Bees came indeed to his hives, but not to make honey, but to render there the honours due to the Creator. The issue of their arrival was that they melodiously sang to Him songs of praise as they were able; after that they built a little church with their wax from the foundation to the roof, divided into three rooms, sustained by pillars, with their bases and chapiters. They had there also an Altar, upon which they had laid the precious body of our Lord, and flew around about it, continuing their musick. The peasant . . . coming nigh that hive where he had put the H. Sacrament, the Bees issued out furiously by troops, and surrounding him on all sides, revenged the irreverence done to their Creator, and stung him so severely that they left him in a sad case. This punishment made this miserable wretch come to himself, who acknowledging his error, went to find out the parish priest to confess his fault to him, ... etc.

I quote also another from the School of the Eucharist:

"A certain peasant of Auvergne, a province in France, perceiving that his bees were likely to die, to prevent his misfortune, was advised after he had received the communion, to reverse the Host, and to blow it into one of the hives. As he tried to do it, the Host fell on the ground. Behold

now a wonder! On a sudden all the Bees came forth out of their hives, and ranging themselves in good order, lifted the Host from the ground, and carrying it in upon their wings, placed it among the combes. After this the man went out about his business, and at his return found that this advise had succeeded ill, for all his bees were dead . . ."

I will close this series of legends with one from the Lives of the Saints:

"When a thief by night had stolen St. Medard's Bees, they, in their master's quarrel, leaving their hive, set upon the malefactor, and eagerly persuing him which way soever he ran, would not cease stinging of him until they had made him (whether he would or no) to go back again to their master's house; and there, falling prostrate at his feet, submissly to cry him mercy for the crime committed. Which being done, so soon as the saint extended upto him the hand of benediction, the Bees, like obedient servants, did forthwith stay from persecuting him, and evidently yielded themselves to the ancient possession and custody of their master."

BLACK BEES AGAIN

By Henry Brenner

In referring to the article on page 214 in May number of American Bee Journal, by Mr. E. G. LeStourgeon, "Are Black Bees Dominant?" I will relate some of my experience, covering something like twenty years, both in Texas and in the Tropics.

About ten years ago, when I left Texas for the Tropics, I sold something like 125 colonies of my bees, and when I returned, in October of 1920, I found that the man to whom I had sold had sold out to five or six different parties, and I only found pure queens of my stock in two apiaries, one in the apiary of Jake Brown, of Seguin, and the other in the apiary of Dr. Asa Wright, of Kingsbury, Texas. Almost all of the bees of all other colonies turned back to black or hybrids, in these few years. So I have been indebted to Mr. Brown and Dr. Wright for breeders of my original stock.

Years ago I mentioned, in the American Bee Journal, that I believed that black drones were more vigorous and swifter on the wing than the Italian drones.

To get the largest percentage of my virgin queens in Santo Domingo purely mated, I tried to rear pure blooded drones artificially. I started there with native black bees that were taken from the woods and transferred from the logs into modern hives; then requeened them with pure queens. I picked out the best virgin queen I could find from my best breeder, and, by preventing a mating, made a drone layer of her; supplied her with good drone comb and kept her always in a prosperous condition. I had fine success in rearing drones artificially in my queen breeding yards in Santo Domingo and had no trouble in getting queens purely mated. While in Porto Rico, where I stayed the first year, black and hybrid drones cost me lots of time and gave me no end of trouble.

Here in Seguin, Texas, where I started my experimental apiary last July with ten hybrid and black colonies by my method of artificial drone rearing, I have succeeded in mating queens in December, January, February and March, showing that queens can be successfully reared and mated in winter on any day that it is warm enough for the bees to fly. From the ten colonies started with in July, I have (without any honey flow) succeeded in increasing my apiary to fifty-six colonies, headed by good, pure-blooded queens, of my stock.

The above could not have been accomplished without artificial means of feeding. In requeening it would benefit the beekeepers if they would pay the same attention to the drones as they do to the queens.

Texas.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

Bees in Cities

Will you be so kind as to tell me the names of cities in which it is permissible to keep bees? This question has come up before the City Council of the town of Napa, Calif.

As Farm Advisor of this county the ocemen have requested me to get all the information that may be available on the subject of beekeeping in cities and towns. Any information that you may be able to give me will be most highly appreciated.

CALIFORNIA.

Answer.—There is not a single city in the United States where it is not permissible to keep bees. It is true that some cities have passed ordinances to prevent the keeping of bees within their limits, but those ordinances are null and void.

There have been several decisions rendered nullifying such ordinances. I can cite one which I have now under my eyes, taken from the report of the "National Beekeepers' Union," published in 1889. The suit was: 127 (Crim.) City of Arkadelphia, Arkansas, versus N. A. Clark. The decision, given at length, makes an ordinance against bees "illegal." (Supreme Court of Arkansas).

As a matter of course, the bees of an apiary may be declared a nuisance if it can be proved that they have stung people or animals. But the keeping of bees within the limits of a city cannot be declared a nuisance, *per se*.

Insurance

Can you tell me if it is possible to get stands of bees insured, and if so, what company or companies write that insurance?

ILLINOIS.

Answer.—I have never insured any bees, and I doubt that any insurance company would insure them at anything like a fair rate, because the bee business is an unknown quantity to the average business man. No doubt they would accept the risk at some figure, but it would very probably be unacceptable to the beekeeper.

In Switzerland. they have mutual insurance among beekeepers, for fire, avalanches (which are very common in the mountain sections), and also for foulbrood. We may become progressive enough in this country to imitate that oldest and most democratic of all republics. I hope so.

Prior Rights

I would like to know the law regarding moving a new outfit of bees in our neighborhood. There are within a radius of 1½ miles 8 different apiaries, some of which contain 75 stands. There a new party contemplating putting in another big apiary within less than half a mile of 73 stands. This party is not a land owner, nor is he even a resident of this community; just moving bees in for pasture. Can we stop him from bringing them it?

ARIZONA.

Answer.—The State laws are so often changed that we cannot follow the changes. However, we do not believe that there is any law in Arizona protecting the first settlers with apiaries against the new men who choose to come.

Your State Inspector is Earl H.Matteson, St David; your State Beekeepers' Secretary is C. M. Frizzell, Tempe. Either of them will be better able than we are to inform you as to the law. We urge you to join your State Association, as it is only by organization that you can secure protection of the kind that you are seeking.

Baits—Clipping Queens

1. What do you think I could use for bee bait, something that would draw the bees to it the quickest?
2. About how long should it take the bees to find the bait in about half a mile of it?
3. What do you think of a swarm of bees having two queens? I had one the other day. I think it had two queens. I caught one and the swarm left with the other before I could get a gum to put them in.
4. About how much of the queen's wing would have to be cut off to keep her from flying?
5. What time of the year would be best to clip the queens, or would you clip them?

ARKANSAS.

Answers.—1. I don't know of anything better to draw bees than old combs burning with considerable smoke. Without burning them you will attract bees, but probably not so readily. Some people claim that oil of anise will draw them, but that is not needed.

2. The time required for the bees to find the bait depends upon how warm it is, which way the wind blows, and whether there is any honey in the field. If the wind blows right and it is warm weather, and if there is no honey in the fields, the bees would come from a half mile in a few minutes.

3. Many swarms have two queens, the old mother and a young queen. However. the rule is that the bees leave with the old queen before the young one is hatched out.

4. It is best to clip about two-thirds of the wings on one side only, as it makes the queen easier to detect on the combs when you look for her afterwards.

5. Clip the queen at any time after she has mated, when you happen to find her. We never clip queens, but it is a good practice, nevertheless.

Stings

When a bee stings my wife she swells about the face and neck and breaks out with nettle-rash all over, within 5 minutes, and itches and it seems as though she has a real bad cold and is hoarse. After the itching gets better she gets very nervous and dizzy. Can you tell me the cause, and is there any remedy, and is it dangerous? She has had two that were real bad, and some that were not very bad. Do people sometimes die from bee stings?
TEXAS.

Answer.—The effect upon your wife is what is called "the hives."

First of all, when she gets stung, she should promptly get rid of the sting, not by frightening the bee away or by pinching the sting out; but by a vigorous and immediate pushing off pressure, even if it crushes the bee. The sting must be pressed away as quickly as possible to avoid getting venom in the wound. I have often pressed a stinging bee away so quickly that although she was seen to sting, yet the poison did not have time to get into the flesh. That is of some importance.

Now for a remedy: Cold water, as cold as possible, is excellent. Spirits of hartshorn, or ammonia, taken with water or hot tea, immediately, in quantities of five to twenty drops, would probably lessen the nervous shock which causes the "hives." If your wife could use tobacco, the smoking of a few puffs of cigar or cigarette, might help. It helped cure me of the "hives." But this remedy is of no avail for an inveterate smoker whose nerves are accustomed to the nicotine. Any quieting remedy is good.

The danger from the poison of stings usually lessens as a person becomes accustomed to it. A few cases are cited of death from stings; but they are extraordinary occurrences, probably due to great nervous excitement.

Read paragraphs 399 to 405 of the Langstroth-Dadant book, "The Honeybee."

Swarms

I have a colony of black bees that is likely to swarm soon. They are *very strong*. I have put on the second super, which is being filled rapidly. The whole hive, from top to bottom, is overflowing with bees. The hive is an 8-frame.

When the swarm comes I shall put it in a new hive of about Jumbo size, with starters.

Would you put on the supers, which will also have starters, as soon as the swarm is hived, or would you wait a few days and then put on the super? MISSOURI.

Answer.—No, do not put on the super until the queen has begun to lay eggs in the lower story, and it is usually better to defer it until the lower body is about full of combs. Otherwise your bees might occupy the upper story and breed in it. Bees always begin at the highest point of the abode given them, since they usually build their combs downward. It is better to use full sheets of foundation instead of narrow starters.

Queen Cells

1. I woud like to know how long it takes a queen to hatch after the cell is sealed over?

2. Would it be better for me to graft the cells in the nucleus box, or let them hatch and introduce them. ILLINOIS.

Answers.—1. If the colony has been made queenless, it will usually take larvæ 3 days old to rear queens, 6 days from the time the egg was laid. About two days after, the cell is sealed and the larva begins to spin its cocoon. So the queen hatches or emerges from her cell about 7 days after the sealing of the cell. There are slight differences in the periods, according to the warmth of the hive and the atmosphere.

2. The cells are much more easy to introduce into the nuclei than the virgin queens. The nuclei should be prepared one day ahead of introducing. So, if you make your colony queenless on a certain day, you should prepare your nuclei 9 days later and introduce the cells, ready to hatch, on the tenth day.

Clipping Queens

When introducing some queens this summer I wish to clip them upon arrival, and before being introduced. Please advise me whether the bees would be any less apt to accept the queens after being clipped. ILLINOIS.

Answer.—No, if you do not damage the queens in handling them, and it can be very easily avoided; they will not likely be less apt to be accepted by the bees. It is their prolificness which interests the bees most, as they appear to know that that is the vital question in the life of the colony.

Dead Brood

I have just discovered some sort of foulbrood in one of my colonies, I noticed the bees carrying out dead pupæ I at once exined the combs and found the most of the brood dead, no eggs, and about a dozen queen cells—most of them sealed. I broke one, taking out the frame, and the pupa was dead and of an iron gray color. Many of the brood cells have been uncapped and the sting end of pupa very white, pointing outward. There is no smell, and the dead, dry brood drops out quite easily, with just a little help. I have some queens ordered that should have arrived yesterday. Can I keep one of them till the brood in this hive hatches, or should I introduce these where I had intended and get one later, when the brood is all out? Also, should I delay giving the queen until the bees have cleaned out the cells?

Can you give me the address of the State Inspector for Iowa? IOWA.

Answer.—Your account of the colony in question does not read like foulbrood. It looks as if there might be a failing queen or queenlessness.

You speak of the sting end of pupa, very white, pointing outward May not this be the tongue, instead of the sting end? Look again.

When there is no smell and the dead brood can be dropped out easily, it looks more like starved brood or sacbrood than either of the foulbroods.

If you can give these bees a queen it will be well to strengthen the colony by giving it some hatching brood from other hives, and perhaps some young bees, if they are worth saving. Delay in having the brood hatch might be of no avail, as they might have some drone-laying workers which would keep the hive with drone brood indefinitely.

For official help, write to Dr. F. B. Paddock, State Apiarist, Ames, Iowa. He will give you advice and help, if needed, and the funds are sufficient.

Ants—Queen

1. Please give me your advice on what to do with ants when they are on the inner cover above the bees. I do not know as they bother the bees, but they are worrisome when I have to go inside of the hive.

2. I have a queenbee that I ordered last fall to requeen with, and she lays 2 or 3 eggs in each cell and does not lay many at that; she just has an ordinary amount of bees. She is as fine looking as any queen I ever saw. Please let me know at once if you think she will overcome this. TENNESSEE.

Answers.—1. Salt or powdered sulphur spread in the cover of the hive will keep ants away. A little coal oil rubbed or painted along the edges of the hive may also discourage them. In some places, they are so annoying that beekeepers find it necessary to place the hives on stands, the bearings of which are kept in water jars. We have always succeeded in discouraging them by one of the above mentioned methods.

If you can find ants' nests in the open, you may destroy them by putting a little dry grass over the nest, pouring coal oil on it and setting fire to it.

2. Usually a queen that lays two or more eggs in a cell does so because she is crowded for room. But it sometime happens that a young queen lays eggs irregularly and finally gets to proper work. As a rule, it is a good sign, if it does not continue too long.

Propolis Poisoning

Can you tell me of a remedy for propolis poisoning? Every time I scrape frames or sections, I get it started on by hands. It itches so much, I can scratch the skin until it bleeds. The doctor here doesn't seem to be able to help it any, so I am writing you to see if you know of anything that will help it. I read about propolis poisoning in the American bee Journal some time ago, but have forgotten whether there was a remedy. If I cannot get relief I will have to quit the bees altogether, as I cannot stand the itching. IOWA.

Answer.—Dr. Bonney advises the use, on the hands, of a carbolized vaseline, 2½ per cent, before starting work on scraping propolis from frames or sections. Those who try it will confer a favor by reporting on its effect.

Clipped Queens

I have 8 colonies and have the queens clipped. If a swarm issues and the queen is lost the bees return to the old stand. Will a swarm then issue with the first virgin coming out to mate? If so, what shall I do to prevent it? PENNSYLVANIA.

The queen should not be lost. As a rule, enough of the bees keep informed about her to indicate her position to the beekeeper when he comes to the rescue. But even if she is not lost, that colony will try to swarm again, even going so far as to ball her or kill her in some way when they find that she is a cripple for swarming. So some action must be taken, as they would swarm with the first queen hatched.

You must either divide the colony and remove all undesired queen cells, or remove a good part of the brood, or put the colony in the spot occupied by a weak stock, thus weakening it; or use the Demaree process of raising the brood to a third story, above the supers. But even this method does not entirely prevent the desire to swarm, and the colony will need to be watched. However, it is likely that you will prevent further attempts at swarming if you weaken it in some way as above stated. Beekeepers should never forget that clipping the queen is not by any means a prevention of swarming. It is just a precaution against the loss of the swarm at the first issue.

Montreal Beekeepers Organize

In November last, at the call of Dr. T. P. Shaw, a new organization of beekeepers was formed for the purpose of developing interest and activity in beekeeping, particularly as of interest to those residing within or near the city of Montreal. The organization is known as the "Montreal District Beekeepers' Association." Meetings are held each month, at which an address on some timely subject is given.

The officers of the association are: Dr. T. P. Shaw, President; Mr. T. A. Light, Vice President, and Mr. R. B. Ross, Jr., Secretary-Treasurer.

The Directors are the above-named officers and Messrs. G. Leslie Robertson and F. X. Dube.

ITALIAN OR AMERICAN BRED QUEENS

By S. Cannell

In the January number of the American Bee Journal, page 27, I note a question from England in regard to American vs. Italian queens. Your answer implies that Italians from Italy, if not superior to American-bred Italian queens, are at least their equals. Allow me to protest.

When I came to Europe just two years ago, I thought much and with pleasure of the wonderful queens I could secure direct from Italy. That spring I ordered about a dozen and a half queens from one of the best known of the Italian breeders. After receiving the first installment I wrote him that if his second batch was to be no better than his first, to keep them. Not one of these queens managed to build up a really strong colony. Not one proved a patch on the average scrub black secured locally. All died a violent death. The few queens (50 or 60) reared from them were better than their mothers, but not enough so as to keep—all are gone.

Last spring, on your recommendation, I ordered from another of Italy's best known breeders, "as few queens as he could send me for $25." I expected one or two; he sent five. One I lost in introducing to a colony of bolshevics, and of the four now living, one has proved herself "good to superior" and the other three only "fair to good."

Every queen received from America has proved properly mated, and either "superior" or able to furnish superior daughters. One golden queen received from Texas ($5) was 21 days on the road. Bees from this queen all show a golden scutellum. This is, I believe, considered one of the indications of Cyprian blood—and wickedness. I worked this colony every day last summer, before and after rains and thunderstorms, during a drought, the worst in a century, when robbers make work most disagreeable, and was stung just three times. Neither smoke nor a veil were ever used on this colony. In spite of being too late for the main honey flow, in spite of a most unfavorable season, this queen built up an enormous colony with great rapidity, that never requires smoke, cannot be robbed, and managed to fill their combs with something from somewhere—where from or what it is I neither know nor care. I noticed lavender honey, thyme honey (long after thyme ceased blooming), something better, and something that looked and tasted like plum preserves. May be it was, but what do I care? These bees got abundant stores of something sweet during a year when most colonies are short. May I add that no Italians from Italy got full stores! Not one can be worked without smoke. Not one built up a colony as strong as the average American. They are not in the same class.

Was I cheated by unscrupulous breeders? I do not think so. I believe I got the best they had. And yet, a few days ago I got a letter from England saying, "Since the war I have never received a satisfactory queen from Italy."

Dr. E. F. Phillips, in "Beekeeping," page 200, makes the following statement: "In the United States special attention has been given to the breeding of Italian bees, and it is probably true that better Italian stock can now be obtained in America than in Italy." You bet, it's true. Were I unable to obtain my breeding queens from America, I would cease breeding queens. I would rather, far rather, have the French blacks than the Italian queens sent to me in return for my good money. No competent, conscientious American breeder, with good, honest American stock, need come to Europe "for a few bees from Italy"; for his breeders, for his methods, for his ways of doing business, he can stay right at home, with complete satisfaction to himself and his customers.

(We are quite glad to hear our correspondent speak so highly of American bred Italian bees. But we believe his bad luck with those Italian bees is accidental and that the breeders are not to blame. We are acquainted, personally with most of the Italian breeders and know them to be honorable. Our own importations have been both from the Canton of Tessin, in Italian Switzerland, and from the provinces of Bologna and Venice. In the eighties, some 40 years ago, we secured hundreds of fine queens from Monselice, in Venice Province. It is true that our home breeders have succeeded in rearing uniformly large and yellow queens, but their bees are not any better nor any gentler than those of the importations. Doolittle took great pride in rearing fine queens, and when I told him that I did not care for the looks of a queen, if her bees were active, peaceable and good honey gatherers, he replied: "You like to look at a pretty girl, why not at a pretty queen?" The advantage that we have found in Italian bees from Italy was their great uniformity in markings and their marked peaceableness. But we will be glad if our home breeders can get more of such praise as Mr. C. gives them.—Editor.)

STANDARD HIVES

By Nic Klein

Why is it that you and others, all leaders in the bee world, talk "Standard" hives and equipment, yet each one recommends a different size hive? Many of you leaders are advocates of large hives, or to be more correct, large frames, but each one has a different size and most of them do not permit of interchange with the present-day 10-frame Langstroth hive, except the so-called Jumbo hive, on which 10-frame equipment may be used. Now, why not get together and at least discontinue a part of these "modified," etc., hives and use the one that permits use of equipment we now have on hand? But, better still, would be to use shallow-frame equipment all around; then you large-frame or hive promoters could give your colonies as much room as you liked, more particularly since you recommend the shallow super equipment for your hive; and here again it doesn't conform to the standard shallow equipment used by everybody else! I should think since some of our best beekeepers still persist in using and defending the shallow hive equipment, and even you large hive advocates prefer it for supers, it would be best for all around; it would be possible to make use of it for any purpose you wished and lots easier to handle and move around, at least for those of us who are only "runts," and for the ladies. Where can shallow frames with Scholl top bars be obtained? Maybe some of those who don't like shallow hives used them with wide or too thick top bars, and so had poor success. I found that in producing comb honey in old triangular top-bar hives and old 2-pound, 3-sided sections having only a narrow brace across bottom, that bees went up into them more readily than into new-style hive with regular Hoffman frames and supers, with the sections placed in section holders as is the practice today. That would show that there is "too much wood" and too narrow passages to go through before getting to super, and likewise would the thick top bars of the width now used act, and why should not the Scholl top bar be better for the shallow frames, since it has no heavy comb to support as in your large frames? It would eliminate sagging of combs and a lot of other troubles as well.

Iowa.

There is one standard hive in this country, if we understand the word "standard" as the most universally used. That hive is the 10-frame Langstroth. If our correspondent wishes to be with the majority, all he needs to do is to adopt the 10-frame standard Langstroth hive. But I see that he is looking at something else. If he wants a shallow hive, like the Scholl hive, he might take the Heddon, or the Danzenbaker; they are all standard hives in their separate fields. Neither of those has been accepted on a sufficient scale to make it "standard," nor do I think that they will ever be, for the reason that they have been tried and are losing favor rather than gaining. The Danzenbaker, which was patented and patronized by the strongest supply firm in the world, is not even mentioned by them in their catalog.

If our correspondent will turn to Europe, he will find that in each of those countries there are different standards, as well as in this country. In Italy they have the Dadant, the Marchigiane, the Tonelli, the Sartori, etc. In Switzerland they have the Dadant, the De Layens, the Langstroth, the Burki-Jecker, etc. In France they have the De Layens, the Voirnot, the Dadant, the Langstroth, etc. In Great Britain they have the Langstroth, the W. B. C., the Abbott, Simmin's Conqueror, etc. But in all those countries they also have the straw skep and the old-fashioned beekeepers cannot see why anyone

would be foolish enough to change. The straw skep is indeed a "standard."

There is probably less variety in hives in Germany than in any other country, many of the beekeepers of Germany using a hive similar to that of Berlepsch, a hive built in the wall of the bee house, one tier above another, with a single shallow super above it. We feel sure our correspondent would not agree to such a standard; the only explanation we can offer of the adoption of such a standard by German beekeepers is that the German nation is accustomed to work in everything in a military way, taking orders from headquarters. It was good for war, but does not lead to progress in every line.

It is not only in bee hives that opinions differ; they differ as well in the selection of races of bees. Some prefer the Italians, others the Carniolans, others the Caucasians, and many still think the old-fashioned common black bee is the best.

We have never recommended to anyone a change of hive or system, as long as they have movable-frame hives, in which the frames are really movable, and the space for supers not restricted to a certain narrow limit. You can succeed with the 8-frame or with the 10-frame Langstroth, many do. You can succeed with the Scholl, or the Heddon, or the Danzenbaker, or even with the old Gallup hive. There are differences in the requirements as to management and some differences in the degree of success. But as a rule, it does not pay to change from a style to which you are accustomed, when you have an established apiary in good shape.—Editor.

WHAT'S IN A NAME?

By H. B. Parks

"What's in a name?" the poet said. If he ever tried to talk to beekeepers about honey plants, he never would have made that remark. Every one who has the least interest in plants knows that no reliance can be placed in the common English names. It is ridiculous to hear men who know the unreliability of such names, disputing over the right of a plant to a certain name.

How our American plants received their common names is an interesting study. Our European forefathers came to a land with new and unnamed flowers, birds and animals. They gave them the names of those of the European home, without regard to science, but as fancy directed. The children of these families went west and repeated the process until the Pacific was reached.

I once corrected a set of examination papers written by teachers. The questions asked were of Edison-like general information, such as, "What is a daisy?" In the 117 papers, 16 different plants were described. The majority gave a description of the European daisy, a composite flower with yellow disc and white strap petals. But of the 16, some could be recognized and some—Oh, my!—came as nearly describing a barrel as a flower. One simply said, "a girl's name."

The New England people found, on arrival, a flower blooming at the same time and resembling **Bellis perennis**, the daisy of Europe, which they promptly and properly named daisy. But the next migration did not do so well. When the New Englanders reached the Mississippi Valley, the common white spring flower was **Claytonia virginica** (spring beauty), an entirely unrelated plant, but it was promptly called daisy.

This instance gives the underlying principle of the progress of common plant names. In the low countries of Europe, **Linaria vulgaris** (butter and eggs) is called "Tousand Gulden Crownen." In southeast Texas, where the land was settled by colonies direct from Alsace-Loraine, one finds **Corydalis aurea** (golden corydalis) called "Tousand Gulden Kraut."

One can hardly wonder at this, for while there is no relationship between the plants, the flowers somewhat resemble each other, and the **Linaria** of Texas has a blue flower.

In Texas there are three plants that go by the name of cow-itch, which illustrate this migration of names beautifully and involve the beekeeper, because one is not a honey

DON'T BE CONFUSED

In buying a larger hive than the ten-frame Langstroth hive. Quinby invented an eight-frame hive with frames about 11¼ inches deep. It was long ago found inadequate in size and was made into a ten-frame hive, a size we have offered for some years.

Charles Dadant found the ten-frame Quinby depth hive needed another frame. He also found it a beekeeping necessity to change this hive further, and evolved the 1½-inch spacing from center to center of the frames. This is the real principle to be considered.

1351 Carson St., Victoria, B. C., Canada
January 25, 1921

Dadant & Sons,
Hamilton, Illinois

Gentlemen: In your catalog you say the price of a Dadant Hive may seem high, but that refers to body only. To me a complete hive is one that has all the requisites for the production of one hundred pounds of honey. In the case of a Dadant Hive it means one brood chamber and two supers. In case of the ordinary hive as now managed it means four stories, two of these being for brood chamber. Just itemize the total cost of a complete hive, and I think you will find the Dadant Hive leading by a few dollars.

Yours sincerely,
F. DUNDAS TODD.

The Large Hive for Extracted Honey Production

Among the reasons why the Modified Dadant Hive deserves a trial, especially where present equipment is not giving satisfaction are:

Deep frames 11¼ inches. Frame space ventilation, swarm control easier, 6¼ in. extracting frames.

Large one-story brood nest, adequate winter stores, greater brood room, standard covers, bottoms.

Present equipment may be used as super equipment on Modified Dadant brood chambers. Covers and bottoms for this hive are the familiar metal roof cover with inner cover and regular standard bottoms, except for larger dimensions.

The standard of workmanship is "Beeware." Write for free booklet on this hive to

G. B. LEWIS COMPANY, Watertown, Wisconsin
DADANT & SONS, Hamilton, Illinois

There's a Distributor near you.

plant and the other two are, thus bringing about endless discussions among beekeepers. The three plants are vines and in common have hair-like rootlets by which they cling to trees, posts and walls. One of them, **Tecoma radicans** (the cow-itch of the Eastern States) or trumpet flower, is not a honey plant, and is said to produce an eruption on the skin of cattle.

Trumpet flower is an excellent producer of nectar, but on account of the arrangement of the stamens in the throat of the corolla tube the nectar is accessible only to humming birds and some of the large sphinx moths. In many cases bumblebees and a few other hymenopters cut holes in the base of the flower and thus obtain the nectar. As honeybees avail themselves of the work of their big relatives, they do get some nectar from this plant. This accounts for its place in many lists of honey plants.

The second is **Cissus incisa** (yerba del Buey), which is a good honey plant and not poisonous. It has hair-like rootlets and in addition very long hair-roots that reach many feet in the soil. The third, **Ampelopsis heptaphylla,** (seven-leaved ivy), is also a good honey plant and not poisonous. While plants overlap in locality, the first is more common in east Texas, the third in central and the second in southeast Texas, showing that the name followed the migration.

Partridge berry and partridge pea are names found from coast to coast and applied to a large number of unrelated plants. To receive the first name, all that is required of the plant is a pod or similar seed receptacle. To get the other, the plant must have red berries.

Many plants receive their names from the fancied resemblance to some object, and thus a large number of plants receive the same name. Lady's slipper is a most beautiful example, as there are almost as many varieties of flowers as of ladies' shoes. Easter lily, cowslip, buttercup and wind flower are names that have been applied without reason, evidently by children who found strange flowers and named them at their pleasure.

One of the most unexplainable cases, however, is how the name heartsease, the European and New England name for pansies or violets, should have been applied to the polygonum in the Mississippi Valley.

Endless examples and amusing incidents could be given of the trouble which common names cause, for who is ready to admit that his name is not the correct one? One thing is certain, if we study honey plants, and study them we must if we are to succeed, we will have to overcome our fright at a Latin name and indulge in some study of systematic botany.

Texas.

Alabama Provides Inspection

W. E. Hinds, State Entomologist of Alabama, advises us that provision has been made for bee inspection in that state. He states that because of lack of funds the institution could not provide a permanent addition to the staff at present and that the appointment of an inspector is temporary. However, it is hoped that a permanent arrangement will be provided shortly. The present provision is made in co-operation with the Southern Industrial Institute of Greensboro, Ala.

Lurem

In answer to advertising appearing in one of the prominent farm journals a member of our staff sent $1.00 to a party in Michigan, who advertised to send a complete way and outfit for luring swarms into decoy hives.

The outfit consists of about one-fourth ounce of beeswax, a teaspoonful of honey, and anis oil.

Naturally when this is placed in a decoy hive it will have the tendency of attracting bees and may lure swarms. Whether the outfit is worth $1.00 or not is problematical, even though it was accompanied by two or three sheets of printed matter.

We would advise those who desire to place decoy hives to get a little honey and anis oil and try it out.

MONEY SAVED **BEE SUPPLIES** TIME SAVED

Roots goods at factory prices with WEBER'S Service

Send us a list of your wants and we will quote prices that will save you money

C. H. W. WEBER & CO., 2163-65-67 Central Ave., Cincinnati, O.

MR. BEEKEEPER—

We have a large plant especially equipped to manufacture the supplies that you use. We guarantee all materials and workmanship. We ship anywhere. We allow early order discounts and make prompt shipments. *Write for free illustrated catalog today*

We pay highest cash and trade prices for beeswax

LEAHY MFG. CO., 90 Sixth Street, Higginsville, Missouri

J. W. ROUSE, Mexico, Missouri **A. M. HUNT, Goldthwaite, Texas**

Limited Use of American Honey in United Kingdom

A permanent market for American honey in the United Kingdom can be developed only through an extensive advertising campaign, according to a report just received from Trade Commissioner Hugh D. Butler, of London. Marmalade and jam are used almost as generally as tea by the British people, so there can be no doubt about their taste for sweets; and there is a possibility that a demand can be created for honey as a change from these conserves. Trade Commissioner Butler continues:

"There seems to be a general misapprehension as to the market for honey in the United Kingdom, due to the fact that the shortage of sugar during the war created an enormous temporary demand for honey as a substitute. Biscuit and candy manufacturers especially used it in large quantities. The main sources for honey at that time were the West Indies and Cuba. The demand was so great that a price of 32 pounds per ton was increased within a short time to 200 pounds per ton. Subsequent to the Armistice, the demand has fallen off very rapidly. One dealer who supplied 3,500 barrels of Cuban honey in one year has not sold any appreciable quantity since.

"An agent who represents certain American beekeepers states that there is no complaint made in regard to the Californian honey received in this country. In matters of color, flavor, containers, packing, labeling, etc., there is no adverse criticism. Shipments received from California or Jamaica can be depended on to be of uniform quality throughout. This cannot be said of the Australian product, the honey in some containers in a shipment from that country being certain to taste of the Eucalyptus tree, which detracts materially from the value of the product.

"At the present time there is no market here for honey as a substitute for sugar, as the latter is now quoted at a figure one-half that of the former. Consequently, the American exporter must look to the use of honey in the home for any expansion of demand. Honey is quoted in this market today around 10d per pound. There are, of course, varying prices for jams, ranging from 6d per pound for apricot jam to, say, 1s to 1s 2d per pound for black currant, so that roughly the price for honey is about equal to the average price for jam. However, if we consider the fact that a pound of honey would not be consumed so quickly by the average family as the same quantity of jam, there is a distinct saving in the use of the former."—U. S. Commerce report.

THE SEASON IS HERE

And with it the Darrow's QUEENS and golden opportunities. Don't miss them.

You don't have to buy queens from an inexperienced breeder. "Darrow's Select Italian Queens" have been giving satisfaction since 1903.

Prompt Shipment; No Disease

I wish to announce that my 1922 prices are as low as can be and maintain the quality of my queens.

I guarantee perfect mates and only list untested three-banded, with an exception of a limited quantity of the lighter breeds.

Single queens, $1.25; 4 or more, $1.15 each; 10 or more, $1 each.

Write for folder.

I will guarantee safe arrival and absolute satisfaction.

WILLIE H. DARROW
Route No. 1, Milo, Mo.

Big Reductions on Bee Supplies

Shipping cases, $30 per 100.
Slotted section holders, $3 per 100.
Sections, 1⅞, No. 1, $10 per 1,000.
Job lots of frames, regular size, $3 per 100.
Standard Hoffman frames, 9⅛ in. deep, $4.50 per 100.
Unspaced wedged top-bar frames, 9⅛ in. deep, $2.75 per 100.

SEND FOR CATALOG AND PRICE LIST

CHARLES MONDENG

146 Newton Ave. N. and 159 Cedar Lake Road

MINNEAPOLIS, MINN.

In Mexico

La Revista Agricola, published by the General Direction of Agriculture at San Jacinto, Mexico, devoted three pages of its April number to a description and statement of tests of the 11-frame Modified Dadant hive, as compared with the 10-frame Jumbo, and gives, as the conclusion of these tests, the statement that "the Modified Dadant hive is the best for the climate of Mexico." The same number displays an apiary of logs, with combs built on the outside of the hives. "Not finding room enough inside, the bees built some of their combs outside." They have, without doubt, a wonderful zone for honey production.

Value of Bees in Pollination

The report of the Agricultural Experiment Station of the University of California, for the years 1920-21, has the following to say of the value of bees in proper pollination of orchards:

"Observations in the Santa Clara Valley in the spring of 1920 and 1921, showed that the recommendations, made by Hendrickson in connection with his pollination studies in 1916 and 1917, that bees be kept in orchards during the blooming period, have been generally adopted by prune growers. A great majority of the prune growers in the Santa Clara Valley now either have bees of their own or rent enough hives to supply their orchards. Bees are usually distributed at the rate of one hive to the acre. Before 1916, beekeepers often had to pay for the privilege of pasturing their bees in prune orchards during blooming time."

Milkol as a Repellant

Since the publication in our April issue of the article by Miss Morse, on a repellant to prevent poisoning of bees when spraying, we have had several enquiries as to where Milkol could be had. It is manufactured by the Sulpho-Naphthol Co., Medford St., Boston, Mass. Miss Morse states that one pint should be added to each 100 gallons of spray mixture to repel the bees.

Imperial Valley Cantaloupes

The Chicago Packer states that there are about 35,000 acres of cantaloupes in the Valley. It is said that about half the acreage of the entire country is in this valley. Since cantaloupes are the source of nectar when in bloom, we are interested in knowing whether any considerable quantity of honey was secured from them. Imperial Valley alfalfa honey is well known in the markets.

Florida Melon Crop Short

The Packer reports that the Florida melon crop has been cut short by drouth and that the yield is only about 20 per cent of the expected crop, mostly of small sizes. At the same time the prospects for portions of Georgia are said to be unusually promising.

New Jersey Queens

These queens are equal to those produced anywhere, and are the daughters of a breeding queen bought in 1921 of one of the oldest breeders of queens in the United States.

This queen was thoroughly tried out last season and her daughters are found to be

HUSTLERS, GENTLE, PROLIFIC

MATED THREE-BAND

QUEENS

1 untested $1.25
6 untested $7.00
12 untested $13.00
Breeding Queens .. $10.00
Circular on request.

Lewis "Beeware" and Dadant's Unexcelled Foundation.

J. F. GARRETSON
Bound Brook, N. J.

Heavy Laying Italian 75c Queens 75c

Bred for honey production. They are large, yellow and very prolific, and produce bees that are large, vigorous, disease-resistant, gentle, and the best for honey gathering.

I breed only the best, and guarantee perfect satisfaction; also safe delivery in U. S. and Canada.

Untested, 75c; tested, $1.50.

ULIS BLALOCK, Christine, Tex.

Goldens the Best

14 years in business should give you best queens possible. Unt., $1 each, or 6 for $5; 25 or more, 75c each. Virgins, 40c each, or 3 for $1. Satisfaction and promptness is my motto.

R. O. COX, Rutledge, Ala.

QUEENS! QUEENS!

Large leather-colored, three-banded Italian queens; 10-year selection, bred from honey-gathering; gentle, hardy and long-lived. Price, select untested, 1, $1.25; 6, $6.50; 12, $12. After July 1: 1, $1; 6, $5. Tested $1.50 each. Write for price on large orders. Free booklet "How to transfer, Get Honey and Increase."

J. M. GINGERICH, Kalona, Iowa.

QUEENS

Select three-banded Italians that will please. Our bees are unexcelled for gentleness, disease-resisting qualities, and honey production. Pure mating and satisfaction guaranteed.

	1	6	12
Untested	$1.25	$ 7.00	$13.00
Select Untested	1.50	8.00	14.00
Tested	2.50	13.00	25.00
Select Tested	3.00	16.00	30.00

Select Tested Breeders, $5.00.

Day-old Queens, 40 cents each.

Queens ready to ship by return mail. Queens' wings clipped free of charge. Write for descriptive circular and prices per 100.

HARDIN S. FOSTER, Columbia, Tenn.

QUEENS

Our Old Reliable Three-banded Italians are Honey Getters. They are gentle, prolific and very resistant to foulbrood. Orders booked for one-fourth cash. Safe arrival guaranteed. Circular free. Prices April 1 to July 1:

	1	6	12
Untested	$1.00	$5.50	$10.00
Select Unt.	1.25	6.50	12.50
Tested	2.25	12.50	24.00

Select Tested, $3.00 each.

See our ad in January Journal.

JOHN G. MILLER
723 C St., Corpus Christi, Texas.

CARNIOLANS

are very gentle, very prolific, wonderful honey gatherers, build exceedingly white combs, little inclined to rob, resist brood diseases equal to any race of bees, and will swarm no more than Italians, if properly managed. *Ask for my free paper describing their merits more fully.*

Untested, $1.50 each; $16.00 per dozen.
Tested, $2.50 each.
During July is an excellent time to requeen in the Northern States.

A. G. HANN, Glen Gardner, N. J.

O. E. TIMM

is back in Nebraska giving personal attention to all orders.

July and August are too hot and dry to raise queens down South, therefore we can turn out better quality queens and get them through quicker.

Italian Queens, $1.00 each; $90 per hundred.

THE BROOKSIDE APIARIES
Bennington, Nebraska.

THE FAMOUS TEXAS QUEENS

Three-banded and Golden Italian

The FAMOUS TEXAS QUEENS can now be had again at prices that are in the bounds of reason. No need of you paying high prices.

My Texas Queens are well known over the world.

Untested queens $1 each, $11 dozen.
Tested queens $1.25 each, $14 dozen.

GRANT ANDERSON, Waco, Tex.
Route 2.

Iowa-Dakota Beemen Meet

On June 6 the beekeepers of South Dakota held a joint field meeting and picnic with the beekeepers of Iowa on the Dakota banks of the Sioux River, near Hawarden, Iowa. A goodly number were in attendance, having come from long distances in both states.

The affair was arranged jointly by the county agents of the counties separated by the river, and by Newman I. Lyle, of the Extension Department of the Iowa College of Agriculture, and Roy M. Gilcreast, of the South Dakota College.

These interstate meetings are very enjoyable occasions, since they offer a good opportunity for members of the craft to meet those similarly engaged in other sections, and to compare notes to mutual advantage. In addition to the usual program of talks on practical beekeeping subjects, a demonstration was given of treatment of American foulbrood.

The associate editor of the American Bee Journal took advantage of the opportunity to see something of conditions in northwest Iowa by spending a few days with Prof. Lyle in visiting the demonstration apiaries in several nearby counties. There is much interest manifested in the work of the demonstration apiaries. At each of them several colonies are carried through the season and proper manipulation given at stated times, in order that those not fully familiar with latest practices can see just how the bees are handled. Various operations are shown at seasonable times showing such things as swarm control, requeening, preparation for winter, etc.

Texas Association Bulletin

We have just received from the Texas Honey Producers' Association a copy of a small booklet which gives a short description of plans of operation, a copy of their by-laws, etc.

It is a very valuable little booklet and gives its manner of organization, etc. Mr. LeStourgeon, the manager, states that copies of this will be sent on request to anyone interested. Address Texas Honey Producers' Association, San Antonio, Texas.

More Tips and Pointers

The Michigan Department of Agriculture has issued more bulletins of interest to beekepers in their general series called "Tips and Pointers." "Requeening the Apiary," by P. T. Ulman, and "European Foulbrood," by B. F. Kindig, have recently come to our desk. Beekeepers interested may perhaps secure copies by addressing the Michigan Department of Agriculture at Lansing, Mich.

Michigan Cherry Prospects Good

Reports from northern Michigan indicate an unusually heavy bloom of cherries. It is said that unless the fruit is thinned many trees will break with the load of cherries. Prospects for a heavy fruit crop seem very favorable over the entire central west. There has been some frost damage in some sections of the east.

MAKE 1922 A SUCCESS
By ordering

THAGARD'S ITALIAN QUEENS

Bred for quality.

Your honey crop depends upon your queens. Our three-banded queens produce workers that will make skyscrapers of your hives. Safe arrival, pure mating, prompt service and perfect satisfaction.

Write for descriptive catalog.

THE V. R. THAGARD CO., Greenville, Ala.

BEE SUPPLIES

Send us your orders for honey containers NOW.
Special Prices on

TIN AND GLASS HONEY CONTAINERS

2½-lb. Cans, per 100	$ 4.25
5-lb. Pails, per 100	7.00
10-lb. Pails, per 100	10.50
60-lb. square Cans, per case of two	1.25
2½-lb. Cans, per case of 24	1.25
5-lb. Pails, per case of 12	1.10
10-lb. Pails, per case of 6	.90

GLASS JARS

8-oz. honey capacity, per case of 24	1.15
16-oz. honey capacity, per case of 24	1.35
32-oz. honey capacity, per case of 12	1.20

Write for prices on large quantities, stating number and sizes wanted.

Send us a list of your requirements of BEE SUPPLIES, and we will quote you prices that are right.

A. H. RUSCH & SON CO.
REEDSVILLE, WIS.

A Novel Suggestion

Ottawa County, Oklahoma, beekeepers recently appointed a committee to confer with the Board of County Commissioners for the purpose of securing a small appropriation for the purchase of sweet clover seed for sowing along the roadsides. The beekeepers contend that sweet clover along the roadsides is much better than cockleburs and other weeds. There is a great waste of productive land along the roadsides of the country. If planted to sweet clover or other useful plants it would afford good bee pasture and prevent the development of large quantities of weed seeds which are now scattered over the nearby farms. We commend the idea to others.

A Bee Book from England

"Bees for Pleasure and Profit," by G. Gordon Samson, is the title of a bee book from the press of Crosby Lockwood & Son, of London. The book first appeared in 1892, and was reprinted in various editions until the fifth, which has recently come from the press. In the new edition a chapter on beekeeping in hot climates has been added. The book is cloth bound and contains 122 pages. It sells for the equivalent of about $1 in our money.

Fruit Men to Export

Plans are under way in the fruit districts of the northwest to organize an exporting concern to place American-grown fruits in foreign markets. Branches are to be placed in the principal fruit producing districts and a foreign office is to be opened in London and kept open throughout the year. American honey producers must go a long way yet before they are ready for any such move in disposing of their crops.

SCOTT QUEENS ARE GOOD QUEENS

MY QUEENS ARE GETTING RESULTS

among my hundreds of honey-producing colonies and for my customers. One writes: "Dear Mr. Scott: please book my order for one-half dozen queens. Those I received from you last season have made 150 lbs. comb honey so far this season. Yours truly." (Name on request.)

UNTESTED GOLDEN OR THREE-BANDED QUEENS

After July 1, one, $1.25; six $7; dozen, $13. Prompt delivery; no waiting.
Pure mating, safe arrival and satisfaction. No disease. Card brings circular.

ROSS B. SCOTT, LAGRANGE, IND.

SUPERIOR FOUNDATION

"BEST BY TEST"

Do not fail to secure our 1922 reduced prices on SUPERIOR FOUNDATION. State quantity desired. We also manufacture Hoffman frames, dovetailed beehives, etc. Quality unexcelled. Prices on request.

SUPERIOR HONEY CO., Ogden, Utah
(Manufacturers of Weed Process Foundation).

AMERICAN FUR BREEDER Monthly Magazine. Tells about breeding Foxes, Mink, Skunk and other fur animals. $1 a year. Sample copy 10c.
American Fur Breeder. Box 217, Eminence, N. Y.

QUINN'S QUEENS OF QUALITY

Have no superior. "There's a reason." Are Mendelian bred, good qualities accentuated. Gray Caucasions, gray Carniolans, most gentle of all, prolific, hardy, vigorous, disease-resisting, white comb builders —they deliver the goods.

CHAS. W. QUINN,
Powhatan, Va.

MISSISSIPPI BRED THREE-BAND ITALIAN QUEENS

The busy kind. Bred from the best, under the most favorable conditions.

PRICE AFTER JUNE 15:

Untested ..... 1, $1.25; 10 or more, $1.00 each.
Tested ..... 1, $2.00; 10 or more, $1.50 each.

I may not be able to ship as many as you want, but I guarantee them to be as good as you want.

W. A. BENNETT APIARIES,
Hattiesburg, Miss.

Let us tell you about the California Gold Medal Queens, The Queens with the Pedigree.

Our hardy, immune, prolific strain of 3-banded leather colored Italians. Developed from the world's best strains by careful selection and tested under California conditions for five years, with excellent results. My specialty will be breeding stock and every queen produced will receive my personal care and inspection. Now receiving orders for the season of 1922, which will be filled in the order of their receipt. Write for catalog and prices.

THE COLEMAN APIARIES,
Geo. A. Coleman, Prop.,
2649 Russell, St., Berkeley, Calif.

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 1922 price list. Our quotations will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

Bright Three-Band Queens and Nuclei

Strong nuclei, 3-frame only, with select untested queen, $5.00.

Select untested queens, $1.00; 6 or more, 75c each.

Select tested queens, $2.00 each.

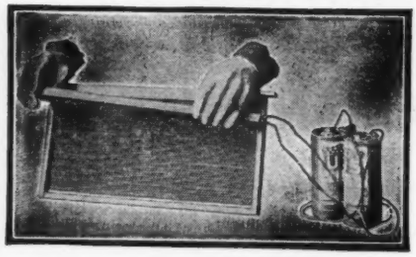
Select breeders in 1-frame nuclei, $8.00.

Fancy white tupelo honey at all times.

Write Apalachicola, Fla., until June 10.

J. L. MORGAN, Gen. Mgr.

TUPELO HONEY CO., Columbia, Ala.



ELECTRIC IMBEDDER

Price without Batteries, $1.00
Not Postpaid.
Weight 1 lb.

Actually cements wires in the foundation. Will work with dry cells or with city current in connection with transformer. Best device of its kind on the market.

Dadant & Sons, Manufacturers HAMILTON, ILL.

Northwestern Headquarters for

Italian Queens

Buy the best queens and increase your profits

Prices June 1 to October 1:

1 untested queen	$ 1.25
6 untested queens	7.00
12 untested queens	12.50
50 untested queens	50.00
100 untested queens	95.00
1 tested queen	2.00
6 tested queens	11.00

J. D. HARRAH, Route 1
FREEWATER, OREGON

Michigan Bred Three-Band Italian Queens

Untested:
July delivery, 1 to 9, $1.40 each; 10 to 100, $1.30 each.
August delivery, 1 to 9, $1.25 each; 10 to 100, $1.15 each.
Virgins, after June 1, 1 to 9, 60c each; 10 to 100, 55c each.
Select tested, after June 20, $2 each.

If you must have untested queens during June, send elsewhere, as my old customers have ordered my entire June output of untested queens.

D. A. DAVIS, Birmingham, Mich.

Maryland Beemen Meet

Maryland beekeepers held a meeting in connection with Farmers' Day at the College of Agriculture on May 27. Interesting exhibits and demonstrations were provided and lunch was furnished by the college. Not only beekeepers, but other agricultural interests were represented, each group having its own program for the day.

New York Field Meet

The summer meeting of the Empire State Federation of Beekeepers will be held at the home apiary of N. L. Stevens at Venice Center, N. Y., on August 4. A general good time is planned, with a number of novel features, including registration of all visitors and the drawing for prizes to be furnished by supply firms. The prizes include queens, books, hives, etc.

Missouri Summer Meeting

Missouri beekeepers will hold their summer meeting on July 7 and 8, at Trenton, with the Grundy County Beekeepers' Association.

Willson to Cornell

R. B. Willson, who has served as Extension Apiculturist with the Mississippi College of Agriculture for several years past, has recently been appointed Extension Apiculturist at the Cornell College of Agriculture at Ithaca, New York.

Mr. Willson has served the Mississippi beekeepers faithfully and well and should do well in his new field. New York is one of the leading honey-producing states and demands upon the Extension Department are so heavy as to keep the specialist very busy.

North Carolina Summer Meet

Secretary Eckert advises us that a change in the plans for Farmers' Week at State College has made it necessary to change the date of the summer meeting of the North Carolina Beekeepers' Association from date formerly announced to August 2 and 3. An interesting program, including a number of demonstrations, is being planned.

A New Bulletin

The State Institute of Applied Agriculture on Long Island, at Farmingdale, New York, has recently issued a bulletin entitled "Beekeeping," by George C. Norton. It contains 32 pages and is suitably illustrated. It is written with the idea of presenting the essentials of beekeeping, together with practice suited to the conditions of New York State, and especially Long Island. Copies may be had by addressing the Director of the Institute at the above address.

Tomato Crop Short

According to newspaper reports, the tomato crop in the Imperial Valley of California was badly injured by frost at the time of the January freeze. The plants were entirely killed in most cases, but a small acreage was replanted.

PACKAGE BEES AND QUEENS

We specialize on Three-band Italians Bred for Business.

Balance of the season we will furnish a 2-pound package of our hustlers with a select untested queen, for $4.75; 25 or more, $4.50 each. No queens, except with packages, before July 1. Prices after that date, from our best breeding queens:

Untested, $1.00 each; $10.00 per dozen; $75.00 per 100.

Tested, $1.50 each; $15.00 per dozen.

Only one grade of queens shipped—Select. Promptness and efficiency our motto.

CANEY VALLEY APIARIES, Bay City, Texas

J. D. YANCEY, Mgr.

BEEKEEPERS WE MANUFACTURE DOVETAILED HIVES, HOFFMAN FRAMES, SECTIONS AND SHIPPING CASES

Our hives are made of best grade White Pine, cut accurate and smooth to standard measure. Sections are made of Basswood polished on both sides. There are no better made.

We carry a complete line of everything used in the apiary. Our shipping facilities are as good as can be found anywhere. We want your business. We guarantee prompt and satisfactory service. Price list free.

MARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.

GOLDEN ITALIAN QUEENS

	Nov. 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12
Untested	$2.00	$ 9.00	$17.00	$1 50	$ 8.00	$14.50
Select Untested	2.25	10.50	18.00	2.00	9.50	16.00
Tested	3 00	16.50	30.00	2.50	12.00	22.00
Select Tested	3.50	19.50	36.00	3.00	16.50	30.00

BREEDERS $12.50 TO $25.00

Queens for export will be carefully packed in long distance cages, but safe delivery is not guaranteed

NO NUCLEI, FULL COLONIES OR POUND PACKAGES

BEN G. DAVIS, Spring Hill, Tenn.

BOOKED to capacity on early May orders. Heavy discounts on introduced laying-enroute-to-you queens with frames, and pounds after May 25.

JES DALTON,
Bordelonville, La.

Will have Golden Italian Queens for delivery after May 25, untested $1.50 each; 12, $14.50; tested, $3; after July 15 untested $1.25.

T. J. TALBOTT & BRO.
409 Marx St., South Richmond, Va.

THE BOOK YOU SHOULD BUY

C. P. Dadant has recently revised and rewritten Langstroth's classic book on the Honeybee. The book now contains the best from three widely known writers on beekeeping, Langstroth, Charles Dadant and C. P. Dadant. The new edition has 448 large size pages and sells for $2.50.

American Bee Journal, Hamilton, Ill.

Notes From Iowa

Buck Grove, Iowa.

There was a period of 40 days here during which there was but 17-100ths of an inch of rainfall, and prospects of a clover crop were gloomy. May 23 there was .25 of an inch, and the storm continued, with prospects of rain for a day or two to come. White clover began to bloom on the 22nd, which was owing to an abundance of moisture in the ground. The prospects now are good for a heavy flow from white clover.

An abundance of sweet clover is planted in this vicinity. There are fully 100 acres within two and a half miles of me, planted mostly for pasture, both Hubam and biennial.

I never saw so much brood and honey in hives in May, owing to a very heavy flow from fruit and dandelion. Returning from the hospital I found everything honey and brood bound, and am only now getting things straightened out.

Honey prices are going to be a problem the coming season, and it is not too early to begin to adjust prices. I do not believe there is any reason why honey should sell for less than 10c a pound. I am still getting 20c retail. A. F. Bonney.

Queen Cages and Introducing Queens

We used last season in introducing queens to black bees without a single loss a cage of my own device with perforated zinc measuring about one-eighth of an inch, just large enough to allow the bees to insert their heads through the slatted zinc and small enough so their bodies cannot pass through. I put 12 or 15 young bees just emerged out of the colony to which the queen is to be introduced in the cage with the queen, placing the cage upside down over the frames. This method appears to me to be the simplest of any. When queens are introduced during dearth a 5-lb. pail of thin sugar syrup should be fed at the same time. I never remember of losing but three queens in 40 years' experience.

Frank Moore

Muscatine County Picnic

The Muscatine County Beekeepers' Association held a picnic and business session at the G. E. Sawyer apiary, June 14. At this meeting Mr. Hall conducted demonstration apiary work, which proved interesting, instructive and helpful to the local beekeepers.

Harry C. Klaffenbach, President of the Muscatine Association ever since its organization, and a charter member of the Iowa State organization, tendered his resignation. He and his wife are soon to leave for Sacramento, Calif., to engage in the bee, poultry and fruit business there. Mr. Klaffenbach has been an enthusiastic and successful beekeeper in Muscatine County. We regret his departure, and wish him success in his new location.

HONEY We are in excellent position to serve beekeepers who do not produce enough honey to supply their trade We have a big stock of fine table honey of various grades always on hand.

In 60-lb. Tins, Crystallized

Water white orange	15c	Extr. L. A. sage	1[illegible]
White sage	14c	Buckwheat	10c

GLASS AND TIN HONEY CONTAINERS

2½-lb. cans, 2 doz. reshipping cases---$1.45 case; crates of 100, $4.50
5-lb. pails (with handles), 1 doz. reshipping cases---$1.35 case; crates of 100, $7.00
10-lb. pails (with handles), ½ doz. reshipping cases---$1.10 case; crates of 50, $5.25
60-lb. tins, 2 per case, new, $1.20 case; used, 25c.

White Flint Glass, with Gold Lacquered Wax Lined Caps

8-oz. honey capacity---$1.50 per carton of 3 doz.
16-oz. honey capacity---$1.40 per carton of 2 doz.
Quart, 3-lb., honey capacity---$1.00 per carton of 1 doz.

HOFFMAN & HAUCK, Inc., Woodhaven, New York

QUEENS FOR SALE—ROOT STOCK

We are now booking orders at the following prices:

Untested, $1.00 each, $10.00 per doz., $70.00 per 100.

Tested, $1.50 each, $14 per doz.

Breeders, $5.00 each.

All orders filled promptly after June 15.

I wish to announce to the beekeepers of the southeastern states that I have taken over the A. I. Root Co. branch house and have everything the beekeeper needs, and all orders will be filled promptly from Savannah, Ga. Satisfaction and efficient service will be given all.

A. R. IRISH, 126 Bay St., Savannah Ga.

First in Alabama to ask for and receive inspection for disease. All Apiaries found free from disease

(Certificate signed, A. D. WORTHINGTON, Inspector).

After twenty-six years of select breeding, we have a clean, bright, three-banded strain of Italian bees that are unsurpassed for their disease-resisting and honey-gathering qualities.

Select untested queens, $1.00 each; 12 or more, 90c each.

Select tested queens, $1.50 each; 12 or more, $1.40 each.

We guarantee our queens to give absolute satisfaction and to arrive in perfect condition. They have pleased thousands of others. Give them a chance to please you. They know how. Our little booklet free for the asking. It tells all about our bees and how to handle them for best results.

M. C. BERRY & CO., Box 697 Montgomery, Ala., U. S. A.

The Master 8-Frame Power Extractor

Requires no attention from the operator, reverses the comb pockets automatically, cannot break combs, does not reverse at full speed, and is the easiest-running power extractor made. Reel made of rust-proof material.

THE SIMPLEX 8-FRAME POWER EXTRACTOR

Semi-automatic; no comb breakage; reverses by simply shifting lever in either direction; does not reverse at full speed; no brake; no slamming of comb pockets against the reel; entire reel made of rust-proof material.

KUNKEL MFG. COMPANY, Los Angeles, Calif.

Phone 11565. **781 S. San Pedro St.**

If your dealer does not handle Kunkel Extractors, write to the above address. We will supply your needs. Write for Illustrated Catalog of Power and Hand-power Extractors.

ATTENTION, PRODUCERS!

NEW HONEY CROP

We are ready to receive your new crop advices sending us your samples and state price wanted, how packed and quantity can ship. Terms cash on arrival.

HOFFMAN & HAUCK Inc., Woodhaven, N. Y.

REQUEEN NOW IF YOU CAN

Right now is the time to begin your plans for securing the maximum crop of honey next season.

Requeening with young prolific queens of a known honey-gathering strain is one of the most important factors in being a successful honey producer. Young, prolific queens introduced now will mean two things: First, strong colonies to go into winter quarters. Second, strong colonies to gather next season's crop of honey.

For more than 50 years we have been breeding up to the Root Quality Queens and Bees. We do not believe that better bees or queens are reared anywhere in the world today. What we try to do is to rear THE BEST.

We breed queens with special view to the honey gathering quality of their bees. We have had this one chief purpose in breeding constantly in mind all these years. We have it uppermost in our minds today.

JULY 1 TO NOVEMBER 1:

	1 to 9	10 to 24	25 to 49	50 to 99	100 or more
C312000—Untested	$1.50 each.	$1.40 each.	$1.35 each.	$1.25 each.	$1.15 each.
C313000—Select Untested	2.00 each.	1.90 each.	1.80 each.	1.70 each.	1.60 each.
C314000—Tested	2.50 each.	2.35 each.	2.25 each.	2.10 each.	2.00 each.
C315000—Select Tested	3.00 each.	2.85 each.	2.70 each.	2.25 each.	2.40 each.

Note the large saving to be made by taking advantage of our low prices on quantity lots.

OUR GUARANTEE ON QUEENS: We guarantee safe arrival of queens sent in mailing cages. We agree to refund the money or replace the queen if the one first sent arrives dead; provided the beekeeper receiving the dead or unfit queen returns her at once and in her own shipping cage, properly marked with name and address of sender. No delay in returning the queen can be permitted. This guarantee applies only on queens sent to customers in the United States and Canada.

Mail all queen and bee orders direct to Medina, or to our nearest branch office.

THE A. I. ROOT COMPANY, WEST SIDE STATION Medina, O., U. S. A.

"GRIGGS SAVES YOU FREIGHT"

TOLEDO, OHIO

BEE SUPPLIES ARE ADVANCING with lumber. Why not lay in your stock now at Old Prices? Send for our Special BIG DISCOUNT SHEET. This will save you money. **Honey Shipping Cases** and **Pails** ready for quick shipment. Extractors, Uncapping Cans and Storage Tanks, all sizes, at Lowest Cash Prices.
We carry both LEWIS and ROOT Goods. Specify which you wish. Free Catalog of either make sent upon request.

HONEY WANTED in exchange for Supplies. NEW CROP ONLY.

GRIGGS BROS. CO., TOLEDO, OHIO
GRIGGS SAVES YOU FREIGHT

QUEENS QUEENS QUEENS

1 untested Queen $1.25, 25 or more ---------- $1.00
1 tested Queen $2.50, 25 or more ---------- 2.25
1 select tested Queen $3.00, 25 or more ---------- 2.50

NUCLEI

Two-comb regular Nuclei ----------$3.60 Twenty-five or more ----------$3.45

PACKAGES

One 2-lb. package, $3.60; 25 or more ---$3.45 One 3-lb. package, $5.00; 25 or more ---$4.75

Add price of queens wanted when ordering above packages.

PATTERSON & CLARK, CHARLOTTE, TEXAS
References: Adams Nat. Bank, Devine, Tex.; Atacosa State Bank, Jourdanton, Tex.

BUMPER

CROPS

QUALITY COUNTS—Not the Price

BREEDING WILL TELL

Queens from Extra Selected Breeders. **Proven by Use. Highly Prolific.** Hardy and **Disease Resisting.**

Untested, $1.50; 12 or more, $1.25; 100 or more, 90c.
Tested, $2.50; 12 or more, $2.00.

Prompt replacements. Fair dealing. We rigidly adhere to the above.

GUARANTEED

SATISFACTION

BOX 585 **THE SOUTHLAND APIARIES, Hattiesburg, Miss.**

SUPERIOR ITALIAN QUEENS

We have 2,000 nuclei in operation and our production of queens should be over 100 queens per day, every one of which we will **Guarantee to be Satisfactory,** and we want to replace all that are not. We have been selling on that guarantee, and our replacements have been few; they must be giving satisfaction.

Untested ----------One, $1.00; ten or more, $ .75
Tested ----------One, $1.75; ten or more, $1.50

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

QUEENS

Nordan's Three-Banded Italian Queens and Bees. (Three-Banded only)

BEEKEEPERS

If you have one colony or five thousand, I want you to give my Superior Strain of Three-banded Italians a trial. I am fixing the price right so you can. I am not a new man come out. I have been in business almost all of my life, for honey production and improving my strain. I have selected and bred my strain from the finest mothers in my yards, which were selected for all the good qualities for over a quarter of a century. I have spared neither labor nor money in developing my strain, until now I can put queens and bees on the market which I know are surpassed by none; and I guaranteed that money cannot buy any better in the United States. When you introduce my queens, beekeepers, you can feel assured you have bees that cannot be surpassed by any in U. S. A., which are backed by over a quarter century of improving and selecting from the finest mothers and mated to colonies drones that are selected. NOTICE! My strain is guaranteed immune to bee paralysis. We have found the foundation of bee paralysis is in the queen, and now, after years of selecting and testing, I guarantee my strain resistant to it. Bee paralysis is greatly over the South. I will gladly replace any bees I ship in which bee paralysis breaks out.

QUALITY AND SATISFACTION

Each and every queen I send out, if it is one or five thousand, is guaranteed to give absolute satisfaction to purchaser's own satisfaction; otherwise advise me and I will gladly send more to take their place. You run no risk; a record of over a quarter of a century of fair and honest dealings. You get your money's worth as nearly as possible, plus a very small profit, and my price is fixed to a very low profit.
All queens select. If they do not prove up pleasing to the eye, they are not shipped. I do not price a select and ship an untested. I give the greatest care to produce the finest queens possible.

PRICES ON QUEENS AND PACKAGES

	1	6	12	100
Select untested.....	$ .75	$4.25	$ 8.00	$60.00
Tested.....	$1.00	$5.70	$10.80	$85.00

Packages

1-lb. package, with queen (full weight), 1 to 12, $2.35 each; 12 or more, $2.30.
2-lb. package, with queen, 1 to 12, $3.85; 12 or more, $3.80.

Can make shipment when you want them, of either queens or packages. I appreciate your business, large or small. Reference: Alabama Bank and Trust Co., Montgomery, Alabama.

M. S. Nordan, Mathews, Alabama

PRICES SMASHED. 85c EACH. UNTESTED QUEENS

MR. BEEKEEPER

If you want the best quality that is possible to produce, at the lowest price possible to produce, here is the place to order your queens. I positively guarantee THAT NO BETTER QUEENS CAN BE BOUGHT, NO MATTER WHERE YOU BUY THEM. These queens are very resistant to bee paralysis, also foulbrood. When you order a tested queen or a select untested from me I don't go out in the yard and cage the first thing I come to and send it to you, like 50 per cent of the queen breeders do. I send out what I advertise, and I stand behind every queen I ship. If they don't give you entire satisfaction, all you have to do is just return them at my expense and I will cheerfully refund your money. Order a few packages of bees and get those weak colonies of yours in shape for the honey flow. I am prepared to ship by return express. The price is right. A limited number of very fine selected tested queens that would make fine breeders, at $4.00 each. Safe delivery and satisfaction positively guaranteed.

PRICES

	1	6	12	100
Untested	$ 85	$ 4.80	$ 9.00	$ 64.00
Select untested	1.00	5.70	10.80	85.00
Tested	2.00	10.50	19.60	150.00
Select tested	2.50	14.40	27.60	175.00

POUND PACKAGES WITH SELECT UNTESTED QUEENS

1-lb. packages....1 to 12, $2.35 each; 12 or more, $2.30 each 2-lb. packages....1 to 12, $3.85 each; 12 or more, $3.80 each

Shipment made by return express.

THE FARMER APIARIES, Ramer, Alabama

Selected Queens of the Highest Quality

1000 Full Colonies **Queens by return mail.** **1000 Nuclei**

Three-Banded Queens our Specialty

Our queens produce bees that are wonderful honey gatherers, gentle and most resistant to all diseases. We guarantee every queen we ship to give entire satisfaction. We clip wings free of charge on request. Safe arrival and prompt delivery are also fully guaranteed. There may be other queens just as good, but we believe you will find few better. To know them, try them.

HAYNEVILLE APIARY COMPANY, Hayneville, Alabama

QUEENS # FOREHAND'S THREE BANDS **BEES**

One Queen for $1. They Satisfy. Why?

Because they are guaranteed to be as good as money can buy. Not a cheap queen, but a first-class queen at a cheap price. Every queen guaranteed to reach destination in first-class condition, to be purely mated and give perfect satisfaction, or money back. Orders filled by return mail.

Untested, 1 to 25, $1.00 each; 25 to 50, 90c each; 50 to 100, 80c each.
Select Untested, 1 to 25, $1.25 each. Tested, $2.00 each, 12 for $20.00.
One pound bees with queen, $3.00; 2 pounds bees with queen, $5.50.

N. FOREHAND, Ramer, Alabama

QUEENS
THREE-BAND ITALIANS

PACKAGE BEES

QUEENS
SILVER GRAY CARNIOLANS

Western headquarters for PACKAGE BEES and QUEENS. Orders booked with 25 per cent deposit, balance just before shipping. Deliveries start April 1. Safe arrival guaranteed of bees within 5 days of shipping point, queens anywhere in U. S. A. or Canada. Free circular for the asking.

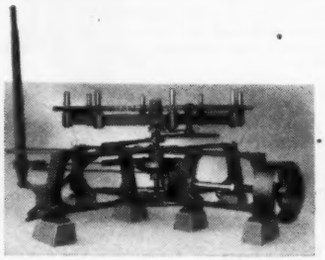
1-pound package	$2.00 ea. 10 or more $1.75 ea.	1 untested queen	1.25 ea. 10 or more 1.20 ea.
2-pound package	3.50 ea. 10 or more 3.00 ea.	1 select untested	1.50 ea. 10 or more 1.40 ea.
3-pound package	5.00 ea. 10 or more 4.50 ea.	1 tested	2.00 ea. 10 or more 1.80 ea.
		1 select tested	2.25 ea. 10 or more 2.00 ea.

References by permission: First National Bank of San Jose; Security State Bank, San Jose
American Bee Journal, Hamilton, Ill.; Western Honey Bee, Los Angeles.

Write for prices in large lots. Breeders, extra selected and tested for breeding, $5.00

J. E. WING **155 Schiele Ave.** **SAN JOSE, CALIF.**

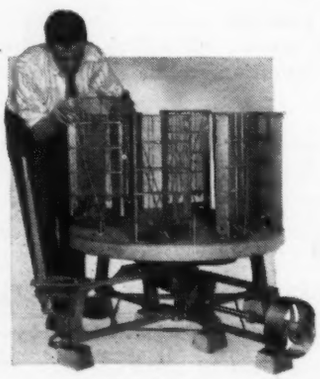
SUPPLIES FOR THE HONEY CROP HARVEST



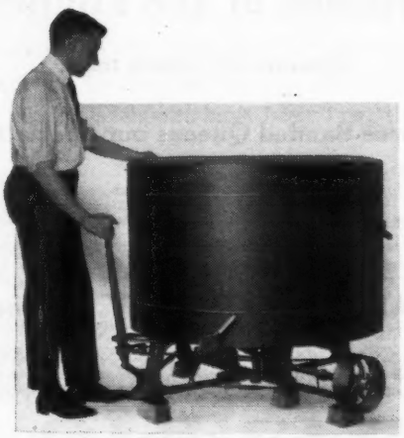
Above photograph shows the machinery which operates the Lewis-Markle power honey extractor, tank baskets and pan removed. The weight is under the tank, where it belongs, giving rigidity and minimum of vibration. Machinery is identical for 4-frame or 8-frame, except in size.

BUY LEWIS "BEEWARE."

Below is the same machine when the pan protecting the machinery from honey and the baskets are in place. The baskets are supported for five times the strain possible to put on them with honey extraction.



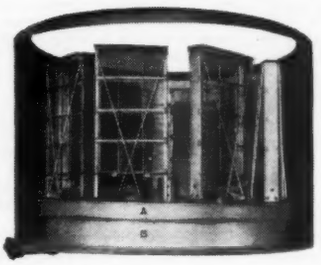
At this season beekeepers begin to think of equipment to assist them in preparing honey and shipping it to the market. An important item is the Lewis cappings melter, the feature of which is that honey is never scorched or overheated by its use, due to the channeled construction. Likewise our honey tanks are electric welded, not riveted. Rauchfuss knives are the best for scraping sections. Lewis shipping cases and carriers are best for shipping comb honey. Ask for free honey house plans.



The G. B. Lewis Company has been serving beekeepers for 48 years and has developed such articles as the 1-piece honey section box, electric uncapping knife, 4-way bee escape, Modified Dadant hive, etc. Your best assurance in buying Lewis "Beeware" is that we employ the best informed mechanical engineers available and back every article with our guarantee. Ask your banker or fellow-beekeeper if our reputation is worthy of trust. Our motto is: "We cannot succeed unless you succeed too."

If you haven't a 1922 "Beeware" catalog, just tell us to send a free copy.

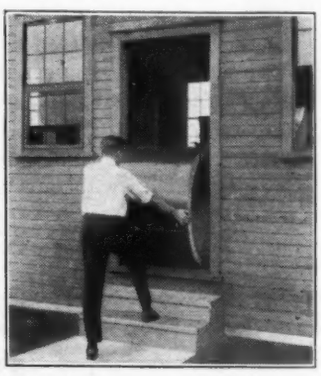
Get the four new Lewis "How" booklets: "How to Produce Extracted Honey," "How to Produce Comb Honey," "How to Manage Bees in Fall," and "How to Remove Bees From Trees," each 5c.



Again you see the same machine showing how the tank (B) and pan (A) supplement each other, giving a tank capacity equal to other power machines. The tank sets into braces, and you may point the honey gate on any spot.

BUY LEWIS "BEEWARE."

It is simple to dismount the Lewis-Markle machine as well as to operate it, for the tank rolls through a 30-inch door and is the largest single piece. An ideal machine for speed, thoroughness, rigidity, ease of handling, cleanliness and price.



BEWARE
WHERE YOU BUY YOUR
BEEWARE
LEWIS
WATERTOWN WIS U.S.A.
MAKES THE FINEST

G. B. LEWIS COMPANY

HOME OFFICE AND WORKS

WATERTOWN, WIS., U. S. A.

Distributors Throughout the U. S. A.

BRANCHES: MEMPHIS, TENN., ALBANY, N. Y., LYNCHBURG, VA., WICHITA, KANS., DENVER, COLO., FROMBERG, MONT.

Crop and Market Report

Compiled by M. G. Dadant.

HONEY ON HAND

Ninety-nine per cent of the reporters state that there is little on hand and very little on the shelves of the dealers.

CONDITION OF BEES

As stated in our last report, there was a very heavy mortality of bees in the Inter-mountain territory.

In this territory it has been very difficult to push the bees up to satisfactory condition, owing to the fact that the fruit bloom period was not entirely favorable. However, bees are building up well and will be in very good condition for the crop which is about to start.

In practically all other sections of the country the bees came out of winter in excellent condition and were ready for the honey flow when it started.

This is especially true in the Central West, which is the exact opposite of what it was last year. Last year fruit bloom and dandelion bloom were spoiled by frost and cloudy weather, whereas this year practically every blossom yielded honey, and the bees were put in the most excellent shape for the clover flow, and in many instances supers were necessary for fruit bloom and the locust bloom which follows in favorable sections.

THE HONEY CROP

This report comes out a little too early to be able to give a very full account of the honey crop in different sections of the country. However, we give it as received from our reporters as follows:

New England States crop just beginning and very good, so far, except that in Rhode Island and Connecticut the crop has been very much below normal, and prospects are only fair for the balance of the season. New York reports there has been no crop, so far, as the season is late. Pennsylvania has been above normal in honey harvested and North Carolina, Virginia and Georgia are at least normal, with a tendency of being above normal. Florida reports a very poor crop, indeed, one reporter stating that it would not be one-fifth normal, and prospects very poor for the rest of the season.

Mississippi reports an excellent crop, whereas some reporters in Alabama stated the cool spring and too much rain hindered the early crop, and they will have to wait for the sweet clover flow to determine what they will get. Louisiana and Kentucky have had normal crops. However, in Louisiana and Mississippi the extreme high water has done a lot of damage to beekeepers in sections where their lands might be inundated. If the bees have not been harmed by the high water, conditions should be better for a crop later in the season.

Texas opened with excellent prospects, plenty of rain and the season looked propitious. However, the spring was unfavorable, and the season was delayed so much that the harvest has probably not been over 50 per cent of the average, and it is a disappointment to most of the Texas localities.

Ohio, Michigan and Wisconsin have had normal crops, so far, although, when this is written, the honey flow is just starting in these sections.

The clover sections of Indiana, Illinois and Missouri and the balance of the Central West, are enjoying generally an excellent crop from white clover. The prospects earlier in the season were not flattering, but everything has been favorable, as stated before, and the honey flow is in some sections magnificent. We refer most especially to Missouri, which has not had a very good crop for several years. Practically every report coming in from Missouri states that the white clover never was so thick, and that bees are booming. The same thing appears to be true of most sections of Illinois and of southern and eastern Iowa. Northern Iowa seems to have suffered from drought, but recent rains have partly alleviated the condition, and prospects are for a good flow from sweet clover and white clover.

The Inter-mountain territory has not harvested any honey yet and at the time this is written, June 1, reports are still coming in that bees are being fed in the Inter-mountain territory to build them up for the honey flow which is to follow.

The same is true of Arizona.

Oregon and Washington also consider bees in most excellent shape, but of course no honey harvested so far.

Early reports from California indicated that there would be an extremely large crop there, owing to very favorable spring rains. Naturally the crop of orange honey was considerably curtailed by the frost, and the result is that the orange crop has been very short. A report from one of the most prominent beekeepers in southern California states that he has harvested from his colonies about 40 to 50 pounds average, so far, and he thinks this will be a big half of the crop which is to be harvested entirely. Report from another beekeeper in a different section is that he has harvested only one-third crop so far and with prospects not flattering for the rest of the season. All in all, therefore, California prospects have not turned out as rosily as it looked a little earlier in the season, although probably the honey crop will be at least as large as last year, and possibly larger.

PROSPECTS FOR BALANCE OF SEASON

As stated by several reporters, it is very difficult to give any idea of what the balance of the season will bring, depending entirely upon weather conditions. However, it seems with ordinary rains the whole white clover producing areas should continue to produce white clover honey until the middle of July, at least, and considerably longer than this in the northern tier of states.

In the southeast, prospects seem very fair for the later flows and Texas beekeepers are hoping that conditions will be favorable for good flows from the summer and fall bloom.

The Inter-mountain territory looks for excellent crops, although Colorado reports very dry weather and hopes for sufficient rain to put blossoms in best shape.

Wisconsin, at best, can not have a normal flow, owing to the fact that the white clover was badly damaged by the drought last year.

HONEY PRICES

With a short carry-over from last season, retail honey prices have held very well to the figures set earlier in the season. Quotations are already coming in on the new crop, both from the southeast and from Texas and California. In all instances prices are at least the equal of last year and they seem to range a little higher, if anything. Water-white orange honey is scarce and seems to be in good demand at price of about 1c above last year.

SUMMARY

In general, it is too early at this writing to give very definite statement as to just what the crop will be, although it is our opinion from reports coming in that the total crop throughout the country will equal and probably be considerably better than in 1921.

The white clover regions will evidently produce more than last year, and likely California will have a slightly larger crop. In the southwest it is doubtful whether the crop will be as large as in 1921. A fuller report of honey produced will be given in our August issue.

Inasmuch as practically all honey is cleaned up and the demand seems to be at least as good as it was a year ago, it is a question whether there will be much reduction from last year's prices. There is this year a very heavy fruit crop throughout the Central West, which will probably have an effect upon the demand for honey. Last year the fruit crop in practically all sections was short and the demand for honey was proportionately large. However, with proper effort on the part of the beekeeper, the late demand, which is always good, can be developed, and we have no doubt but that honey sales can be stimulated largely in this manner. Beekeepers as yet are honey producers, and not honey marketers.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue: If intended for classified department it should be so stated when advertisement is sent.

BEES AND QUEENS

Consumers say rich and fine. Atwater Honey.

HIGH GRADE Italian queens, laying, $1.50; tested, $2.50; day-old, 50c. Introduction guaranteed, 75c.
James McKee, Riverside, Calif.

FOR SALE—Golden Italian queens, 1 untested, $1.00; 6 for $5.00. Tested, $2.00.
J. F. Michael, Rt. 1, Winchester, Ind.

BRIGHT 3-banded queens an nuclei. See cut prices in our ad. on page 328.
Tupelo Honey Co., Columbia, Ala.

CONNECTICUT QUEENS—Highest grade 3-banded Italians. Untested, $1 each; 6, $5.50; 12, $10; 50, $40; 100, $75 Two pounds bees with queen, $4; three pounds with queen, $6. Day-old virgin queens, 40c each; 3 for $1. First class stock and satisfaction guaranteed. No disease here. Conn. Valley Apiaries.
A. E. Crandall, Berlin, Conn.

NO MORE PACKAGE BEES this season.
J. J. Scott, Crowville, La.

TRY MY Caucasian or Italian 3-frame nuclei at $5.50 each with tested queen; with untested queen, $5 each. Tested queens, $1.50 each; untested, $1.00 each. Italians by return mail. No disease. Peter Schaffhauser,
Havelock, N. C.

WARRANTED PURE MATED Italian queens in special sure-introducing cages. First order, $1.25 each; 30 years experience in queen rearing. No honey in queen candy.
Daniel Danielsen, Brush, Colo.

FOR SALE—Italian queens. Untested, $1.25 each; 6, $7.00; 12, $13.50. Tested, $2.00. Safe delivery and satisfaction guaranteed.
R. B. Grout, Jamaica, Vt.

FOR SALE—Golden Italian queens. Untested, $1.00; 6 for $5.40; 12 or more, 80c each. Tested, $1.40 each. Good honey gatherers, hardy and gentle. No disease; safe arrival. Hazel V. Bonkemeyer,
Rt. No. 2, Randleman, N. C.

CALIFORNIA QUEENS—100 per cent perfect; large, vigorous Italians, guaranteed layers. They are making a hit, as proven by repeated orders and letters of appreciation. Am building a name and reputation; try at least one; you will surely want more then. Prices reduced. Select untested, 1, $1; 6, $5.50; 25, 90c each.
H. Peterman, R. F. D., Lathrop, Calif.

REQUEEN with Simmons Queens. Prices reduced.
Fairmont Apiary, Livingston, N. Y.

"FLORIDA FIRST" QUEENS—Prices July to November: Select untested, $1.25; 5 for $5. Select tested, $2; 5 for $9. Bright three-banded Italians; gentle, vigorous and prolific. Bred right. Indian River Apiaries, Wilson, Fla. Circular on request.

ITALIAN QUEENS—Three-banded, select untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, after July 1: $1.25 each; 12, $1.00 each. Special prices on larger orders. Send for circular.
J. H. Haughey Co., Berrien Springs, Mich.

WE ARE OFFERING our bright Italian queens at 85c each, $9.00 per dozen, $65 per 100 in 100 lots. Safe arrival, pure mating and reasonable satisfaction guaranteed in United States and Canada.
Graydon Bros., Rt. 4, Greenville, Ala.

ITALIAN BEES—Full colonies with Italian queen, $15; two for $25. Three-frame nucleus with queen, $6.50. Three-pound package with queen, $6.50. No disease. Safe arrival and satisfaction guaranteed.
Van's Honey Farms,
Van Wyngarden Bros., Props.,
Hebron, Ind.

GOLDEN ITALIAN QUEENS—Untested, 1, $1.25; dozen, $12. Safe arrival and satisfaction guaranteed. J. J. Sanford & Son,
R. F. D. 1, Box 60, McKenzie, Ala.

SWARTS' AMERICAN GOLDEN QUEENS produce golden bees of highest quality. Untested, $1.25 each, 6 for $6.50; tested, $3.00. Satisfaction guaranteed
D. L. Swarts, Rt. 2, Lancaster, Ohio.

FOR SALE—Golden Italian queens; untested, $1, 6 for $5.40; 12 or more, 80c each; tested, $1.50; select tested, $2.50. No disease of any kind; bees very gentle and good honey gatherers.
D. T. Gaster, Rt. 2, Randleman, N. C.

SPICER'S 3-band Italian queens by return mail. If you are interested in improving your stock and getting larger returns from your bees, head your colonies with these queens. Untested, $1.00; 6, $5.50; 12, $10.00. Tested, $2.00 each.
Rob't B. Spicer, Wharton, N. J.

PURE 3-banded Italian queens, reared by the Doolittle method from the best honey-producing mothers. $1.00 each; tested $2.00. I guarantee pure mating and safe arrival.
H. N. Boley, Hillsboro, Iowa.

SPECIAL PRICE in August—Latham will mail untested queens during August for $1 each, if order is received three weeks in advance of mailing date.
Allen Latham, Norwichtown, Conn.

ELTON WARNER'S QUALITY QUEENS—Progeny of his famous Porto Rican breeding stock. Write for price list; 20 per cent off after June 30.
Elton Warner Apiaries, Asheville, N. C.

3-BANDED QUEENS, $1.00 each. Bees in any way desired. Write for prices.
Curd Walker, Scotts Station, Ala.

3-BANDED Italian queens, $1.00 each, $10 per dozen. Alabama Bee Co.,
Rt. No. 1, Fort Deposit, Ala.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
86 Dey St., New York City.

QUEENS—3-banded Italian; also goldens; the thrifty kind. Untested, 1, $1; 6, $5.50; 12, $10. Tested, 1, $2; 6, $11.50; 12, $22. Select tested,1, $3; 6, $12.50; 12, $24. Write for prices after July 1. No disease. Safe arrival and satisfaction guaranteed.
P. O. Watkins, Cullasaja, N. C.

PINARD'S QUALITY of Root's strain of bees and queens. Virgins, 50c. Untested queens, $1.25 each; larger lots, write. Circular free. After July 1, 10 per cent discount.
A. J. Pinard, 440 N. 6th St., San Jose, Calif.

BEES AND QUEENS at reduced prices. Cypress hives for sale. Write for terms.
Otto Diestel, Elza, Ga.

THREE-BANDED ITALIAN QUEENS—Untested, June, $1.15 each; six for $6.50. After July 15, $1 each; six for $5.50. No questionable methods, no queenless stunts, no swarm boxes, no dry grafting, no hatching into cages, no baby nuclei. I rely on supersedure conditions in big queenright colonies. Matings from strong 3-frame nuclei,
John Protheroe, Rustburg, Va.

YOUR ORDER for queens will be filled by return mail. Only one grade and that the best of 3-banded Italians. Untested, $1; $10 per doz. Tested, $1.25 each. No disease. Safe arrival and satisfaction guaranteed.
J. W. K. Shaw & Son,
Loreauville, La., Box 72.

WE SPECIALIZE on three-band Italians, bred for business. See ad. elsewhere for prices.
Caney Valley Apiaries,
J. D. Yancey, Mgr., Bay City, Texas.

HEAD YOUR COLONIES with Williams' Italian queens of quality and get more pleasure and profit from your bees. They produce bees that are gentle, hardy and hustling. Descriptive circular free. Select untested 75c each.
P. M. Williams, Ft. Deposit, Ala.

"SHE-SUITS-ME" Queens, line-bred Italians, $1.50 each; 10 to 24, $1.30 each; 25 to 49, $1.25 each; 50 to 99, $1.20 each; 100 queens, $115. See page 38 of January number.
Allen Latham, Norwichtown, Conn.

QUEENS—Three-band, special price for June and July. To decrease our nuclei through summer we will ship our pedigreed strain of honey-getting 3-band queens at $1 each.
Dr. White Bee Co., Sandia, Texas.

FOR SALE—My 1922 Golden Italian queens, the hustling kind, second to none. Satisfaction guaranteed. Price, untested, $1 each, $10 per doz., or $80 per 100. Tested, $1.75 each. After June 15, 90c each, or $9 per doz.; $70 per 100. Tested, $1.50 each.
E. F. Day, Honoraville, Ala.

BURLESON'S three-banded Italian Queens. For balance of 1922, $1 each or $90 per 100. Safe arrival and satisfaction guaranteed. Send all orders, together with money, to my manager, J. W. Seay, Mathis, Texas.
T. W. Burleson, Waxahachie, Texas.

DEPENDABLE QUEENS—Golden or three-banded, after June 1: One, $1.50; six, $8; dozen, $15. Safe arrival and satisfaction guaranteed. Card brings circular.
Ross B. Scott, LaGrange, Ind.

1903 DARROW'S QUEENS EXCEL 1922
Read ad. on page 325.

WHEN it's quality, service and satisfaction, you want to try Pinard.
A. J. Pinard, 440 N. 6th St., San Jose, Calif.

BEES AND QUEENS at reduced prices. Two-pound packages bees with untested queens, $3.65; 3-pound packages bees with untested queens, $4.55; 2-frame nuclei with untested queens, $3.80; 3-frame nuclei with untested queens, $4.70, in lots of 100 or more. For small lots add 10 per cent. Reference: Security Bank and Trust Co., Wharton, Texas.
W. H. Moses, Lane City, Texas.

QUEENS, QUEENS, from my old leather-back Italian queen. Ready to ship after April 15. She is the head of my apiaries. Untested, $1.25; tested, $2.50; select tested, $3.00. More than 12, prices on application. Guaranteed safe delivery. O. O. Wilder & Son.
Rt. 2, Box 14, Corpus Christi, Texas.

TRY ACHORD'S Package Bees and Queens. Price list by return mail.
W. D. Achord, Fitzpatrick, Ala.

WE BELIEVED in former years that we had the best Italian queens obtainable. "We still believe it." Mr. H. E. Crowther, Jefferson, Ohio, a large commercial honey producer, writes: "They are fine specimens, indeed, and very resistant to foulbrood." We are making the price this year in reach of all. Untested, $1, select untested $1.25, tested $2, select tested $2.50. We will sell virgins at 50c. We have breeders from Italy, and can furnish either from Americanized or imported stock.
F. M. Russell, Roxbury, Ohio.

PACKAGE BEES, $1.50 per pound; untested Italian or Carniolan queens, $1.25 each. See larger Adv. Free circular. J. E. Wing,
155 Schiele Ave., San Jose, Calif.

GOLDEN QUEENS, GOLDEN—1922 price: untested, one, $1.25; doz., $12. Select untested, one, $1.50; doz., $15; tested, one, $2.50, doz., $27.50. Pure mating and safe arrival guaranteed in United States and Canada. Booking orders now.
Tillery Bros., Georgiana, Ala.

FOR SALE—Early package bees, nuclei and queens. Shipping season from March 1 to June 1. We handle 1,800 colonies. No disease. Loveitt Honey Co.,
602 N. 9th Ave., Phoenix, Ariz.

THREE-BANDED ITALIAN QUEENS—Select untested, $1 each, $9 per dozen; 1-lb. package with queen, $3; 2-lb. package with queen, $5. Safe arrival and satisfaction guaranteed.
W. T. Perdue & Sons, Rt. 1, Ft. Deposit, Ala.

QUEENS—We are prepared to furnish queens in quantities promptly. These queens are reared for us by the most reliable breeders. Write for prices.
Dadant & Sons, Hamilton, Illinois.

1903 DARROW'S QUEENS EXCEL 1922
Read display ad. on page 325.

FOR SALE—Leather colored Italian queens, tested, until June 1, $2.50; after, $2. Untested, $1.25; 12, $13. Root's goods at Root's prices. A. W. Yates,
15 Chapman St., Hartford, Conn.

BOOK YOUR ORDERS for QUEENS now—Goldens, $2; tested, $3; banded, $1.50; tested $2.50; six or more, 10 per cent less.
Clover Leaf Apiaries, Wahoo, Neb.

BEES BY THE POUND, ALSO QUEENS—Booking orders now. Free circular gives prices, etc. See larger ad elsewhere.
Nueces County Apiaries, Calallen, Texas,
E. B. Ault, Prop.

FOR SALE—400 stands clean bees, extracting equipment; good location; for reason write. The Oregon Apiary Co.,
Nyssa, Oregon.

"ACE-HIGH" three-banded Italians hustle. Bred from excellent stock. No effort or expense spared to produce quality. No disease. Prices reasonable. Send for descriptive circular *now*, before you forget.
A. G. Van Ronzelen,
Route 2, Box 212, San Antonio, Texas.

HARDY ITALIAN QUEENS, $1 each.
W. G. Lauver, Middletown, Pa.

DIEMER QUEENS—I make a specialty of good three-banded Italian queens at $1 each.
J. F. Diemer, Liberty, Mo.

UNSURPASSED ITALIAN QUEENS, ready June 1: Untested, 1, $1.25; 6, $7; 12, $12.50; 50, $50; 100, $95. Tested, 1, $2; 6, $11. Every queen is mated and laying before she is mailed.
J. D. Harrah, Freewater, Ore.

CARNIOLAN QUEENS—None better. Select tested, $2.50 each; select untested, $1.25 each. Also choice Italians, same prices. Send for circulars.
Geo. W. Coltrin & Son, Mathis, Texas.

LARGE, HARDY, PROLIFIC QUEENS—Three-band Italians and goldens. Pure mating and safe arrival guaranteed. We ship only queens that are top-notchers in size, prolificness and color. After June 1, prices as follows: Untested $1.25 each, 6 for $7; select untested $1.50 each, 6 for $8.50; select tested $3 each. Special prices on larger quantities. Queens clipped free on request. Health certificate with each shipment.
Buckeye Queens, Zoarville, Ohio.

HONEY AND BEESWAX

Consumers say rich and fine. Atwater Honey.

FOR SALE—80 cases, 60-lb. cans, two in a case, 60c per case. Honey was liquified with dry heat, leaving the cans in extra fine condition.
John C. Bull,
1013 Calumet Ave., Valparaiso, Ind.

HONEY FOR SALE—In 60-lb. tins, water white orange, 15c; white sage, 14c; extra light amber sage, 12c; New York State buckwheat, 10c, for immediate shipment from New York.
Hoffman & Hauck, Inc.,
Woodhaven, N. Y.

HONEY—Atwater sells fine alfalfa-clover honey, extra strong cases, case of two 60-lb. cans, $12; case of twelve 5-lb. pails, $7.80, all f. o. b. here. Ten-lb pails all sold out; plenty of the others on hand.
E. F. Atwater, Meridian, Idaho.

FOR SALE—Several tons dark and amber baking honey; new crop comb honey ready about July 10. H. G. Quirin, Bellevue, Ohio.

SUPPLIES

Consumers say rich and fine. Atwater Honey.

PROTECTION HIVES (good), $1.50 each; Novice extractor, No. 5B, like new, $15.
A. R. Coover, Gladbrook, Iowa.

THE BIGTIMBER BEE SUPPLY CO., Bigtimber, Mont., the original and present manufacturers of the famous Kleinhesselink line, is making special offers on introductory orders.

HONEY CANS AND PAILS—New sixties, 50 cases at 91c per case of two cans.
Stover Apiaries, Mayhew, Miss.

SEND FOR our bargain list of new bee supplies, hives, frames, bottoms, covers, sections, shipping cases, almost everything you want. Some at 50 per cent discount.
Stover Apiaries, Mayhew, Miss.

WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.
The Colorado Honey Producers' Association,
Denver, Colo.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

FOR SALE

Consumers say rich and fine. Atwater Honey.

FOR SALE—50 colonies Italians; 10-frame hives; combs from full sheets wired foundation.
Dr. Eugene L. Crowson,
Pickering, Mo.

FOR SALE—10-frame colonies Achord's strain; wired comb, $12.
James Wheeler, Maroa, Ill.

FOR SALE—350 colonies of bees with complete extracting equipment, including power extractor, steam boiler, and auto truck, with or without 1922 crop.
Scott McClanahan, Rt. 1, Parma, Idaho.

FOR SALE—Italian bees and standard equipment at half price.
F. Olson,
1923 Grand, St. Paul, Minn.

FOR SALE—Reversible 2-frame Cowan extractor and 20 colonies bees in standard 10-frame hives and equipment.
Harry P. Itnyre, 511 W. 10th St.,
Sterling, Ill.

FOR SALE—25 colonies of Italian bees and equipment for extracted honey. Write for particulars at once.
M. P. Woodworth, Rt. 2, Oshkosh, Wis.

FOR SALE—White and amber extracted honey; also comb honey. Write for prices. State quantity wanted.
Dadant & Sons, Hamilton, Illinois.

FOR SALE—Bee location. Located in Cloverland, the upper peninsula of Michigan. Greatest clover location on earth, three-eighths mile to P. O. and R. R. station. Good house, 2½ acres land, flowing well, etc. No bees in territory; unoccupied; great chance for beekeeper seeking a location where no bee disease exists. Address "Owner," Lock Box 126.
Rudyard, Mich.

1903 DARROW'S QUEENS EXCEL 1922
Read display ad. on page 325.

SELL OR TRADE, now or in fall, complete outfit to produce about 1 car each comb and extracted honey. One of the best outfits in the west. Good reason for selling. Address West, care Colorado Honey Producers' Assn.,
Denver, Colo.

ROBBING PREVENTED or stopped. J. A. B. entrance guards do the trick. Return mail, one $1.
John A. Bloomgren,
Ridgway, Pa.

FOR SALE—Modern standard make typewriter, $50; or will trade for bees, queens, honey, or offer.
Mrs. Ida Harris,
Box 707, Tuscaloosa, Ala.

FOR SALE—Good second-hand 60-lb cans, two cans to a case, boxed, at 60c per case f. o. b. Cincinnati. Terms cash.
C. H. W. Weber & Co., 2163 Central Ave.,
Cincinnati, Ohio.

FOR SALE—"Superior" Foundation (Weed process) Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

WANTED

Consumers say rich and fine. Atwater Honey.

WANTED—Prices on comb and extracted honey. Send samples of extracted.
O'Flyng, N. Monroe, Decatur, Ill.

WANTED—To trade a Fairbanks-Morse gas engine, slightly used, for nuclei or bees.
Geo. Weber, Genoa, Ill.

WOULD LIKE TO BUY some more good honey, some beeswax and also maple syrup.
Paul Thomae, 1156 Third St., Milwaukee, Wis.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

WANTED—Honey, section, bulk comb and extracted.
Elton Warner, Asheville, N. C.

WANTED—Honey, section, bulk comb and extracted.
W. A. Hunter, Terre Haute, Ind.

SITUATIONS

Consumers say rich and fine. Atwater Honey.

WANTED—Man to work coming season in our apiaries. State age, experience and wages wanted in first letter; also give reference.
The Rocky Mountain Bee Co.,
Box 1319, Billings, Mont.

WANTED—Situation by energetic and industrious young man who wishes to take up bee culture. Would like to work for board and room where a large apiary is kept. State number of colonies.
J. W. O., P. O. Box 344, Eureka, Calif.

WANTED—Man for comb honey production. State age, wages expected, and experience.
B. F. Smith, Jr., Fromberg, Mont.

WANTED—One experienced man, and students or helpers, in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near summer resorts. Write, giving age, height, weight, experience, reference and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

REAL ESTATE

Consumers say rich and fine. Atwater Honey.

BEAUTIFULLY located apiary in New Jersey, 25 miles from New York City. New stucco house with all city improvements; fine locality for bees and poultry. Cash $2,000, balance $6,000 mortgage, or will take partnership with reliable party. Inquire 556 Park Ave,
West New York, New Jersey.

FOR SALE—Place of 47 acres 2½ miles from good town with two railroads; one of the best equipped bee farms in the state. Can give long time on part of the purchase price. Will also sell all, or part, of 350 colonies Italian bees, and a full equipment of supers for extracting. Six or eight thousand dollars will swing this proposition, and, for anyone wanting a ready built up, paying business, it will bear investigation. Good outyards already located, and everything "ready to go." But please do not write unless you are fixed for business, as we are busy.
E. S. Miles & Son,
Dunlap, Harrison County, Iowa.

MISCELLANEOUS

Consumers say rich and fine. Atwater Honey.

FOX TERRIERS—Best burglar protection, hunters and companions. Choice puppies cheap.
Lorenzo Clarke, Winona, Minn.

PUSH-IN COMB INTRODUCING CAGE, 35c; 3 for $1. It will do the business. See advertisement in April number.
O. S. Rexford, Winsted, Conn.

WANTED—To exchange for 8-frame nuclei of Italian bees with tested queens, complete radio receiving apparatus, 75 ft. twisted copper wire, aerial with insulators, bulb detector and amplifier mounted with transformer and rheostats; loose coupler; variable condensers (2) A and B batteries; 6-60 storage battery; imported telephone receivers; all necessary wire and clamps. Have received human voice clear and distinct over 400 miles distance. New, complete and ready to use. No extras to buy. Cost $143. What have you to offer?
H. A. Van Cott,
Glenwood Landing, Long Island, N. Y.

Motts' Northern Bred Italian Queens

All selected queens this season, after July 1, $1 each; select guaranteed pure mated or replaced free, $1.50 each; select tested, $2.50; virgins, 60c each.

Plans "How to Introduce Queens" and Increase," 25c.

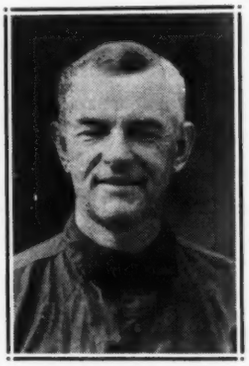
E. E. MOTT, Glenwood, Mich.

Illinois Field Meets

The following field meets have been arranged for Illinois: July 19, Henry County at Andover; July 20, Putnam County at Putnam; July 21, Macon County at Decatur; July 22, I. and I. Association at Danville; July 25, McLean County at Bloomington; July 26, Christian County at Taylorville; July 27 Coles County at Charleston.

Mr. E. W. Atkins, of the Lewis Company, is to attend these meetings from July 19 to July 22, and it is hoped to get Mr. E. R. Root to attend the whole series of meetings from July 19 to July 27, or at least to have a Root representative at the meetings for July 25, 26 and 27.

QUEEN PRICES REDUCED



Owing to my discovery of a law in queen rearing heretofore unknown to me, whereby practically all queen cells are accepted by bees in nuclei rendering queen production more economical, I want to share this saving with my customers in the form of a price reduction to take effect July 1. This new feature works in perfect harmony with bee nature and readily accepted cells are the result. The emerging virgin is gladly received by the bees and given the best of care so that she develops and mates from one to two days earlier than was the case before I employed this new law. This feature and all others used by me will be fully explained in my new book on Queen Rearing that will be published some time before next January.

Owing to these new methods, I shall be able to **fill all orders promptly** and guarantee every queen to be first-class in every respect, and will gladly replace any that prove otherwise.

Our original stock was obtained from Mr. Doolittle, and since that time I have carefully selected for prolificness, vigor and color, at the same time keeping the bees as gentle as is possible without their losing any of their pep.

"'Alice,' the queen I got from you, has produced my finest colony out of fourteen competitors. I have failed to find the equal of her bees for work, size, beauty and gentleness. Her prolificness is wonderful. Twenty frames are kept filled with brood and two supers filled with honey since May first—one month." Thornton Bogert, Cincinnati, Ohio.

A card will bring our queen catalog and folder describing our introducing cage that removes the uncertainty in queen introduction.

Prices after July 1:

1 to 4, inclusive	$2.00 each
5 to 9, inclusive	$1.95 each
10 or more	$1.90 each
Breeders	$10.00 each
Introducing Cages	.75 each

JAY SMITH, Vincennes, Ind.

ROUTE 3

TO SELL YOUR HONEY WELL IT MUST LOOK WELL

This means, whether you sell your honey locally or ship it, and whether it is comb or extracted, that it must be put into good-looking packages—tin, glass or carton. Then, if you ship it, the shipping case must be strong enough to prevent any possible damage to the package in transit. The dressing up of your honey package with a handsome label is another part of the honey-selling business. If you are going to do roadside selling, as thousands of beekeepers do, you will want an attractive "Honey for Sale" sign. Note the prices quoted on many of these articles—then order today, while the stocks at our home office and at our branches are full and in finest condition.

FIVE GALLON (60-lb.) SQUARE CANS AND SHIPPING CASES

Our 5-gallon square cans are equipped with wire handles, 1¾-inch screw cap, put up in strong re-shipping cases having ⅞-inch ends, ⅜-inch sides, bottom and top; no partition. The following prices are f. o. b. Medina, New York, Baltimore and New Orleans. Shipment will be made from point nearest you. Prices:

5-gal. square cans, 2 in case, 10 cases, $10.50; 50 cases, $50; 100 cases, $95.
(Shipment from Chicago, 10c per case extra).

ROUND JARS

The round jars we have to offer are made of clear white glass. This white glass does not darken the honey's color as green glass does. The jars are fitted with lacquered tin caps, lined with thick wax paper disks packed in re-shipping cases of 24 jars each. The following prices are f. o. b. Medina, Chicago, Indianapolis, New York, Philadelphia and Norfolk. Shipment will be made from point nearest to you. Prices:

16-oz. Round Jar, 24 in case, weight 18 lbs., per case, $1.20; 30 cases, $33.
32-oz. Round Jar, 12 in case, weight 12 lbs., per case, 90c; 30 cases, $25.50.

The following prices on round jars are f. o. b. St. Paul and New Orleans, and these prices will be applicable only when shipment is made from these points:

16-oz. Round Jar, 24 in case, weight 18 lbs., per case, $1.35; 30 cases, $37.50.
32-oz Round Jar, 12 in case, weight 12 lbs., per case, $1.00; 30 cases, $28.50.

FRICTION TOP CANS AND PAILS

We offer these for shipment in original packages only, either from Medina or from factories located in Central Western Virginia, Southern Ohio, Southeastern Iowa and Southeastern Louisiana. Prices:

2½-lb. can—Box of 24, $1.10; carton of 100, $4.00; crate of 500, $18.00.
5-lb. pail—Box of 12, $ .90; carton of 50, $3.25; crate of 100, $6.50.

10-lb. pail—Box of 6, $ .75; carton of 50, $4.50; crate of 100, $9.00.
(Note—The 2½-lb. can has no bail while the 5-lb. and 10-lb. pails have a wire bail).

6½-OUNCE TUMBLERS

For an inexpensive package holding a scant half pound of honey, the tin-top tumbler is very popular. We supply with these tumblers, besides the tin top, a wax-paper disk for sealing it tight when filled with honey:

6½-oz. tumbler, with tin top, 4-dozen case $1.40

CARTONS FOR COMB HONEY

The best salesman for the beekeeper who makes a business of producing comb honey, is an attractive and sanitary carton. Comb honey put up in cartons is free from dust and flies. Being printed in two colors with this special engraved design on the front, it makes a very handsome package.

Price of folding cartons, printed:
Sizes of sections: 4¼x1⅞, 4¼x1½, 4x5x1⅞
Price per 100, $1.35; per 1,000, $13.20.

Price of Danz. or slip cartons, printed:
Size of sections: 4¼x1⅞, 4¼x1½, 4x5x1⅞.
Price per 100, $1.25; per 1,000, $12.00.

For printing name and address on cartons, add per 100, $1.50; per 1,000, $3.00.
For plain cartons with no printing, deduct, per 100, 20c; per 1,000, $2.00.

SHIPPING CASES

Comb honey, to be shipped safely and bring top prices, requires a ery strong as well as a good looking shipping case. This is exactly the kind we make. Our cases are regularly single-tier for 24 sections, but can furnish the double-tier case from Medina, or Council Bluffs. When in flat, we include nails, and, as ordered, we ship with or without 2-inch glass strips with the necessary grooved wood strips and end-blocks to put in the glass side. Prices:

Sizes of sections.	In flat with glass, in lots of 10	100	In flat, no glass 10	100	Wt.
4¼x4¼x1⅞	$6.00	$58.00	$5.75	$55.50	360
4¼x4¼x1½	580	56.00	5.55	53.50	340
4 x5 x1⅞	5.80	56.00	5.55	53.50	340
4¼x4¾x1⅜	5.80	56.00	5.55	53.50	340
3⅝x5 x1½	5.80	56.00	5.55	53.50	340

HONEY LABELS

Our catalog of handsome new honey label designs will be out within a few days. These will be the handsomest labels we have ever offered the beekeepers. Write for this catalog and we will mail it as soon as it is off the press.

OTHER THINGS YOU MAY NEED

Other articles you may need at extracting time and on which we shall be glad to quote you attractive prices, are parcel post cans in cartons, small screw-cap oblong cans, Mason and E-Z Seal jars, sample mailing blocks for honey, scales for weighing sections, stamping outfit for sections, carriers for shipping comb honey and "Honey for Sale" signs.

THE A. I. ROOT COMPANY, Medina, O.

DON'T DELAY—Get our Prices and we'll get Your Order

WE SAVE YOU MONEY

"falcon"

Supplies, Queens, Foundation

W. T. FALCONER MFG. COMPANY, Falconer, (NEAR JAMESTOWN) N. Y., U. S. A.

"Where the BEST Beehives come from"

BARNES' FOOTPOWER MACHINERY

Read what J. E Parent, of Chariton, N. Y. says:

"We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work."

W. F. & JOHN BARNES CO.
995 Ruby St., ROCKFORD, ILL.

Our Honey Labels are Good Labels Send for Catalog.
American Bee Journal, Hamilton, Ill.

The Engravings appearing in this publication are made by the
Waterloo Engraving & Service Co.
Waterloo, Iowa
Engravers, Electrotypers, Commercial Photographers, Photo Retouchers, Designers
Write if you need designs of Signature Cuts, Letter Heads, Labels, Etc.

ACHORD'S ITALIANS ARE GOOD BEES

Whether you have only a few colonies or five hundred, we believe you will like them, and they will prove a worthy addition to your yard. They are a bright, hustling, three-banded strain, bred primarily for honey-production, but also for gentleness and color. We have spared neither labor nor expense to make them the very best.

Price of Queens, June 15 to October 1:

Untested------- -$1.00 each; 5 or more, $ .90; 10 or more, $ .80; 25 or more, $ .75
Select untested----$1.10 each; 5 or more, $1.00; 10 or more, $ .90; 25 or more, $ .80
Tested ----------$1.75 each; 5 or more, $1.65

Safe arrival and satisfaction guaranteed.

W. D. ACHORD, FITZPATRICK, ALA.

QUEENS OF QUALITY

ITALIANS **CARNIOLANS** **GOLDENS**

We ship thousands of Queens and thousands of pounds of Bees all over the United States and Canada every year.

Two-comb Regular Nuclei, no extra bees $3.75
Three-comb Regular Nuclei, no extra bees 5.25
Two-comb Regular Nuclei, with one pound extra bees 5.25
One-pound package Bees, $2.25 each; 25 or more 2.15
Two-pound package bees, $3.75 each; 25 or more 3.60
Three-pound package Bees, $5.25 each; 25 or more 5.00
One-comb Regular Nuclei, with two pounds extra bees..... 5.25

QUEEN FREE with all of the above packages except 1-pound size; will furnish them at half price with these.

PRICES OF QUEENS ONLY

1 Untested Queen, $1.05 each; 25 or more, 91c each; per 100, ...$85.00
1 Select Untested, $1.19 each; 25 or more, $1.05 each; per 100 .....$95.00
1 Tested Queen, $1.57; 25 or more, each $1.40
1 Select Tested Queen, $1.85; 25 or more, each $1.57
Breeders .....$5.00, $10.00 and $15.00 each

Send for FREE CIRCULAR.

NUECES COUNTY APIARIES, CALALLEN, TEXAS
E. B. AULT, PROP.

ALWAYS MAKE SURE THAT THIS TRADE-MARK IS STAMPED ON EACH PIECE OF

"Tidewater" Cypress

"THE WOOD ETERNAL"

THEN YOU BUY SAFETY (AND SATISFACTION) FIRST, LAST AND 'TWEEN TIMES

"ALL-HEART" GRADE FOR BEEKEEPERS' USE

Southern
Cypress Manufacturers
Association

ADDRESS NEAREST OFFICE

1251 Poydras Building
NEW ORLEANS, LA.

1251 Graham Building
JACKSONVILLE, FLA.

FOREHAND'S THREE BANDS

THE THRIFTY KIND

For over a quarter of a century our bees and queens have been giving satisfaction to America's greatest honey producers.

Careful selecting has brought our strain of bees up to a standard **surpassed by none but superior to many.** We are constantly selecting to improve the thriftiness, hardiness, gentleness and beauty of our bees.

Our queens are bred from mothers imported from Italy in the spring of 1921, or the daughters of queens imported in 1920. Cross breeding with our domestic strain lightens the color of the imported bee and brings them up to our standard, which is surpassed by none but superior to many. We breed into them thriftiness and hardiness.

We guarantee our bees to be purely mated and to give satisfaction the world over. Safe arrival is guaranteed in the United States and Canada.

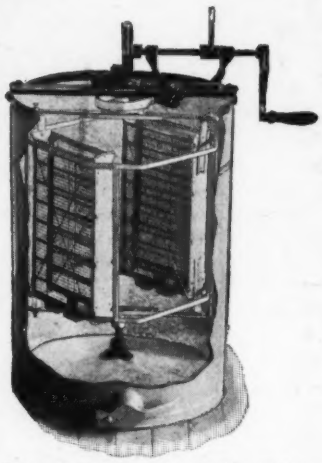
PRICES:

1, $1; 6 to 11, 90c; 12 to 49, 85c; 50 to 99, 75c; 100 to 299, 70c; 300 up, 65c.

W. J. FOREHAND & SONS

FT.DEPOSIT, Ala.

What Extractor to Buy



Root Two-frame Reversible Extractor, more of which have probably been sold than all other extractors combined.

What should you know and know very positively about an extractor before buying one?

You should know, first of all, that it is strong, rugged, built on right mechanical principles, and so will not fail you in the busy rush of the extracting season.

You should know that back of the extractor that you buy stands the guarantee of a manufacturer who knows the problems of extracting and has thoroughly worked them out by years of test and experience.

You should know that the manufacturer of whom you buy will be able to give you lasting service, that is to say, furnish you parts for the extractor you buy today even ten or twenty-five years from today, and do it by the earliest express or mail.

You should know that the extractor you buy has the fewest complications possible, and is the easiest to operate.

You should know that the extractor you choose has stood the test of years and is not an experiment that may soon go to the extractor cemetery where so many "new" extractors and extractor hopes have gone.

OUR PROPOSITION TO YOU

We invite the beekeeper to put any one of our extractors to the severest test for strength of construction. Put ours alongside of any other extractor of like capacity, speed both up to the highest number of revolutions possible, and judge for yourself as to strength and ruggedness.

Our warrant for quality and correct construction is this: Most of the extractors we made and sold 25 or 30 years ago are still in operation and doing excellent work. We are making even sturdier, longer-lasting extractors today—for we know how.

Our warrant for prompt service today and ten years from today is this: We are furnishing extractor parts for models made 25 years ago and furnishing such parts by the first outgoing express or mail. What we have done in the past, we shall do in the future. If you buy an extractor of us today, and five or ten or twenty-five years from today want a part for it, our factory will furnish it by earliest return mail or express—just as we have done for years. You can't get that service except from the long-established manufacturer.

EVERY EXTRACTING NEED MET

Our 50 years of experience in designing and manufacturing extractors has taught us the extracting needs of the different classes of beekeepers, and today we manufacture nine regular models. The line runs from the "Novice" 2-frame hand extractor (the excellent little extractor designed by A. I. Root 53 years ago) up to the latest big extractor, our 8-frame Buckeye Power Extractor. It is a complete line. In it is your extractor, and we shall be glad to advise you what extractor you need if you will tell us how much extracting you have to do, where you have to do it, whether you have power or not, how long time you have in which to do it, and so forth.

COMPLETE EXTRACTING OUTFIT

Besides our complete line of extractors, we have the best and latest in uncapping knives, honey storage tanks, capping melters, wax extractors, wax presses, honey strainers, oil and gasoline stoves—everything for extracting. Ten pages of our 1922 catalog are devoted to extracting equipment. It is free to you for the asking.

Write for quotations on your complete extracting equipment.

Four-frame Buckeye Hand (or Power) Extractor.

THE A. I. ROOT CO., MEDINA, O.

WEST SIDE STATION